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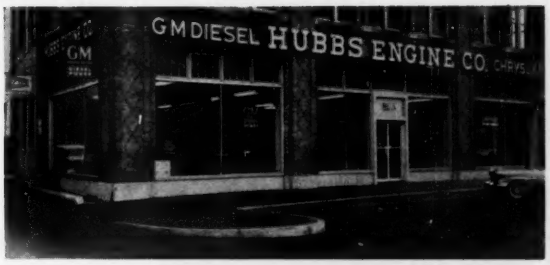

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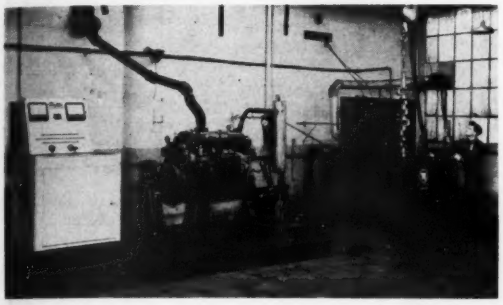

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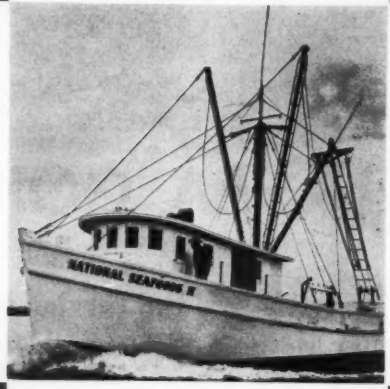

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The Lookout

Boat Performance

Fishing boat performance will be the theme of next year's Second World Fishing Boat Congress, scheduled for April in Rome. Sponsored by Food and Agriculture Organization (FAO) it will be a follow-up on the 1953 Congress which was devoted to the design of fishing craft.

The coming meeting will deal with fishing tactics, construction of fishing craft, sea behavior of fishing of boats and productivity of boats. Deck layout for different fishing methods, comparison of various types of winches and lifting devices and sheltered working areas will be discussed under tactics.

Construction sessions will cover strength of fishing vessels in a seaway, establishment of minimum standards for scantlings, comparative costs and advantages of steel, wood and plastic constructions, insulation of fish holds, preservation of catches, and installation of machinery with particular emphasis on shafting, torsional vibration, flexible couplings and stern gear.

The topic of sea behavior is expected to develop more knowledge of the resistance of fishing vessels when towing and handling gear. The wake, thrust deduction factors and propulsive efficiency typical for fishing boats will be analyzed. The use of the period of roll as a criterion of stability, and the effects of head, stern and oblique seas on sea-kindliness also will be discussed.

Information relating to productivity will cover the relation between size and type of boat to cost and earnings, rate of catch and distance to grounds, as well as consideration of factory ship operations, transfer of catches, mother ships, and speed versus better preservation.

In discussing fishing boats in relation to fisheries as a whole, the Fishing Boat Congress will evolve data which will enable naval architects to function not only as draftsmen in putting down on paper the operators intentions, but also as technical authorities in developing boats to give maximum yield for a specific investment.

If the naval architect is given freedom in designing a boat, and is not limited to certain main dimensions and engine power, he will be able to propose a much more efficient tool. The experienced and realistic naval architect, given this freedom, will take into account not only the technical factors affecting the operation of the boat, but many others, such as the human element, biological considerations, and economic conditions.

NATIONAL FISHERMAN

The Fishing Industry Magazine

Vol. 39 No. 5 June 1958

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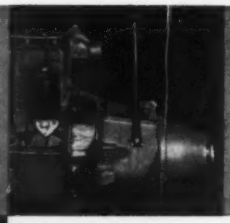

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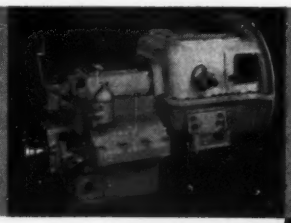

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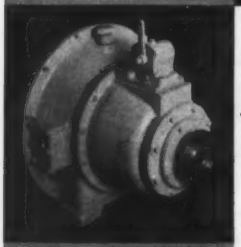

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FISHERY PROGRESS

► Fisheries Loan Program

Up to May 14, 1958, a total of 436 applications for fisheries loans, from funds set up in 1956, totaling $16 million has been received. Of these 220 ($3,600,000) have been approved.

As several applications have been deferred indefinitely at the request of the applicants, sufficient funds have been available to process all applications received to date.

Between July 1, 1957 and May 14, 1958 New England has received 34 loans totalling $949,000; the Middle Atlantic, South Atlantic and Gulf areas have been granted 16 loans totalling $407,000; the Pacific Coast has obtained $699,000 in 31 loans. The loans have ranged from $1,000 to $130,000.

The Senate recently passed and sent to the House, a bill to increase the Government's fishery loan fund from $10 million to $20 million.

► Conservation Amendments

Amendments to the Coordination Act which would clearly establish the authority of project construction agenices to provide for the enhancement of fish and wildlife resources as an integral part of Federal water development projects have been recommended to Congress by Secretary of the Interior Fred A. Seaton.

The amendments are designed to provide for the better conservation of valuable commercial fishery resources, now threatened by numerous coastal and estuarine developments.

► No Harm From Fall-Out

The Atomic Energy Commission said recently that no evidence had been found to support a Japanese report that fish and marine life in the Western Pacific had been contaminated by radio-active fall-out from atomic tests.

There is no threat to the United States West Coast fishing industry from radio-active waters, a spokesman said.

► Geneva Labor Convention

Approximately 80 nations will have representation at the International Labor Conference beginning June 4, 1958 in Geneva, Switzerland.

Among the problems up for consideration are three pertaining to fishermen. The first concerns the minimum age for admission of fishermen to employment. The second deals with medical examinations for fishermen, and the third would consider articles of agreement for fishermen employed aboard fishing vessels.

► Starfish Eradication Bill

Legislation of vital interest to the oyster industry has been introduced in Congress by Senator Bush, Congressmen Cretella and Seely-Brown of Conn., and Congressman Wainwright of New York, to provide for an emergency program for the eradication of starfish in Long Island Sound and adjacent waters.

In a statement made on the floor of the Senate Bush stated, "The infestation of Long Island Sound by starfish threatens a $90 million industry in the States of New York and Connecticut, which gives direct employment to 9,000 persons. The industry itself is spending $10,000 a week to combat this menace, but has been unable to develop successful control measures unassisted.

'The bill . . . introduced would authorize an appropriation not to exceed $1 million to enable the Secretary of the Interior to develop and carry out a vigorous emergency program for the eradication of starfish.

► Causes Some Rancidity

Fundamental research on the effect of oxidation on fishery products has shown that the same mechanism involved in the discoloration of canned tuna is also involved in some forms of rancidity of fishery products and in the deterioration of some forms of fish meal, according to the Department of the Interior.

It has been proved that some forms of rancidity in the fish tissue are accelerated by the presence of hematin. The dark meat of fish which contains most of the hematin compound absorbs oxygen to a much greater extent than does the light meat.

► Fishermen's Medical Care

Senator Magnuson, chairman of the Senate Committee on Interstate and Foreign Commerce, has introduced a bill to provide medical care for certain persons engaged on board a vessel in the care, preservation or navigation of such vessel.

Public and Marine hospitals have provided hospitalization for seamen but at times the Public Health Service has questioned the eligibility of fishermen not actually engaged in navigation duties. Senator Magnuson's Bill would leave no doubt that fishermen are included.

► Fishermen's Co-op Bank

Congressman Tollefson of Washington State has introduced legislation to provide credit facilities for the use of fishermen's cooperative associations through establishment of a Bank for Fishermen's Cooperative Associations.

Similar to the bank for farm co-ops, the bank would be organized by the Interior Dept.; a revolving sum of $10 million would be made available by Congress for loans to fishery coops for financing fish storage, to provide operating capital, to acquire land, buildings, and equipment of fishing gear and vessels. In due course, the coops would own the bank and the Government would have its original investment returned.

► Salmon Embargo Bill

The Fisheries Sub-Committee of the House Merchant Marine and Fisheries Committee has reported out favorably to the full Committee, with an amendment, the Pelly Salmon Embargo Bill.

The Pelly amendment changes the bill to read that it would be illegal to import salmon from any country which allows gillnet fishing on the highseas where salmon of North American origin intermingle. It would exclude salmon in all forms, frozen, canned, or otherwise, and whether caught by long-lining, trolling, or gill netting. The author and supporting witnesses claim the legislation is not a barrier to trade, but a conservation measure. It is intended to jar the Japanese into quicker action.

The 1958 Japanese salmon fishing season in the North Pacific was initiated on May 5, when 16 mothership fleets departed for the fishing grounds. This is the same size fleet as the one that operated in 1957. Only one fleet will operate in the Okhotsk Sea in accordance with the new Japanese-Soviet fisheries agreement, while the other 15 fleets will operate in the Aleutian area west of 175°W.

► Fishery Assistance Hearings

Hearings were held May 27 and 28, before the House Committee on Merchant Marine and Fisheries, on Congressman Bate's Bill "to provide a 5-year program of assistance to enable depressed segments of the fishing industry in the United States to regain a favorable economic status, and for other purposes."

Congressmen William H. Bates and Thomas J. Lane of Massachusetts; Congressman Frank Coffin of Maine; Thomas J. Rice, James S. Carlson and Thomas Fulham of Boston; Mayor Beatrice Corliss of Gloucester, Mass.; and Charles E. Jackson of the National Fisheries Institute.

In his testimony, Jackson reported that the NFI Legislative Committee favored legislation to provide Federal funds for offsetting the subsidized fishing boat building advantage available to foreign countries and for extending credit to the fishing industry for modernizing boats and plants in order to be truly competitive with fishing interests abroad.

ENGINEER'S FIELD REPORT

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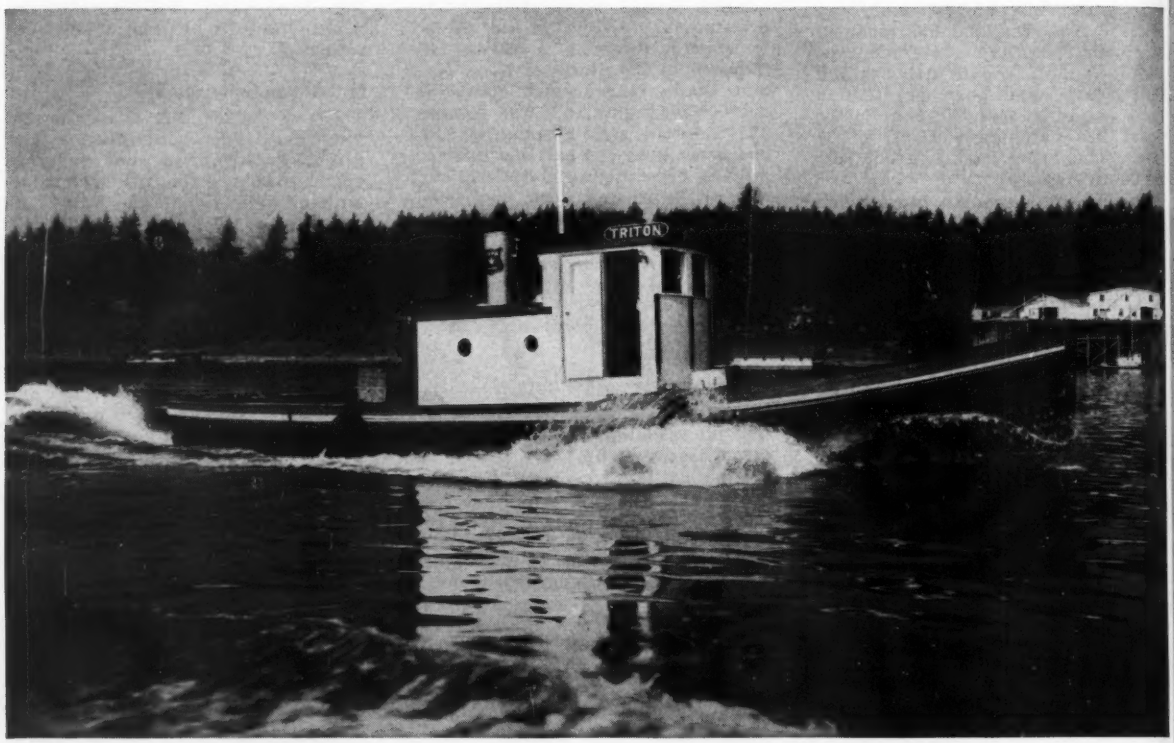

Operating at top speed 90% of time, MV Triton (above) ran 9 years on RPM DELO Oil for Columbia River Packers Association, Vancouver, Wash., before overhaul. One of three pickup boats in operation, this 48-footer collects from 12 to 16 tons of fish per trip from fishing boats for delivery to Ellsworth Station. 160 h.p. Graymarine engine, overhauled in 1956 after 21,600 hours, had no carbon, lacquer deposits or stuck rings, and no rust despite fact Triton had sunk seven times in service.

Station Mechanic and Launchman George Lane reports: "RPM DELO Oil has never let us down. It keeps our engines in top running condition with no corrosion or sludging problem. That's important because, when the fleet is working, the catch must be collected by these boats as fast as possible. Any poor engine performance or breakdown could cause the catch to spoil on the way to the cannery."

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Power Requirements for Deep Sea Trawling

An analysis on trends and potential developments in British fishing fleet

WITH the present methods of preservation of fish and the present rates of capture, the point has nearly been reached past which an increase in speed of long distance trawlers would be uneconomic. If improved preservation methods were available, the optimum speed might change. In order to get the maximum economic advantage from up-to-date freezing methods, it may be necessary to design boats with machinery that has a power output only slightly in excess of that needed for trawling since the need for very fast runs to market would be reduced.

The efficiency of a fishery can be measured by such standards as the weight of fish per man day effort, per ton of fuel consumed, per unit of capital employed and per unit cost of maintenance of ship and fishing gear. By converting these into monetary terms it is possible to establish a basis for economic analysis of fishing operations and a standard of overall efficiency.

The design of the fishing gear and its method of use are among the most important factors affecting the economics of a fishery. Among others are the distance of the fishing grounds from the ports and the method of preservation of the fish. Only the method of fishing and design of the gear can affect the rate of catch, but all the factors affect the number of men, the fuel consumption and the size of the ship.

The interaction of catching rate, distance and method of preservation in the trawl fisheries of the North Atlantic are well known. The ships of the British distant water fleet, for example, return on the average with about half of the maximum possible weight of fish which could be stowed in the holds, because of limitations of crushed ice as a means of preserving the catch. The large size of the ships is determined partly by the weather considerations, but the ships now being built are far bigger than those considered necessary twenty years ago.

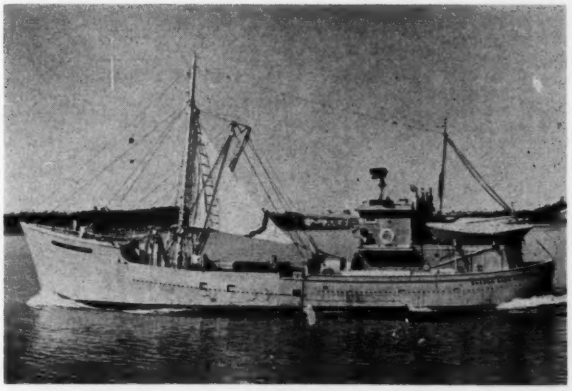
The real advantage of the larger ships is speed and the ability to maintain speed in bad weather. Speed can allow a few extra hours of fishing before returning home, and reduces the time for which men and capital are idle on the way to and from the fishing grounds. Speed has to be paid for by increased capital and maintainance costs and in increased fuel consumption. Apart from wages, fuel is the biggest single item in the costs of a distant-water trawler.

Better Methods of Preservation

Given present methods of preservation and present rates of catching, the point has almost been reached beyond which, increases in speed in long distance trawlers will be uneconomic. The extra length and power required would make the costs excessive in relation to the value of the landings. On the other hand, if an improved method of preservation were available, the optimum speed might change.

For instance, if the use of antibiotics with crushed ice was found to be feasible, it would extend the keeping time of fish by several days, and the period of fishing might be therefore extended. If it were extended by the full amount possible, speeds would have to remain as high as at present, or they might increase very slightly as the extra catch might justify the higher costs. If fishing were extended, more reasonably, by a shorter period than the extension of preservation, then some or all of the time gained might be used for a slightly slower but more economical running from the fishing grounds to the home port.

* This article is based on material written by G. C. Eddie, Food Investigation Organization, Dept. Scientific and Industrial Research, Torry Research Station, Aberdeen, U. K., and presented at FAO International Fishing Gear Congress.



NOVA SCOTIA'S NEWEST SCALLOPER, the "Sharon Dawn", owned by Adams & Knickle Ltd. of Lunenburg, N. S. She is powered by an 8 cylinder, 38F5¼ Fairbanks-Morse opposed piston Diesel, rated 520 hp. at 1100 rpm. Swinging a four-blade, 70 50 propeller on 6" Tobin Bronze shaft through Snow-Nabstedt 4:1 reduction gear, the engine provides a speed of 10½ knots. The vessel carries 20 hp., 10 kw. Diesel generating unit and 130 hp. Diesel winch engine.

Freezing renders the fish virtually imperishable, and in this extreme case it would be necessary to consider Arctic trawler designs with the whole range of possible powers to a lower limit set by the requirements of trawling. The best power for a given size freezing trawler might be quite near the minimum.

A freezing plant uses up space and capital but this might be saved by adoption of smaller main engines and fuel tanks. It may be economically attractive to fit a freezing plant in to a hull of 185 feet or very little more.

Power Needed for Trawling

The immediate problem is to determine the shaft horsepower and thrust that are really necessary in the trawling condition. Opinions seem to vary. A figure of 800 hp. is often quoted as necessary for a long-distance trawler and figures as high as 1200 hp. are mentioned. Knowledge based on actual records seems to be scarce.

Observations were made of three different trawlers under various fishing conditions by the Torry Research Station. There was no attempt at a systematic study of the effects of fishing gear, or varying depths, weather or catch, or of the design of propellers, since these subjects were not within the terms of reference.

The *Sir William Hardy*, a steel trawler of 130 feet, smaller than a typical distant-water trawler, but with trawling gear of average size, was the first used in the tests. Special facilities were available for making accurate measurements of power and speed. It was thought that the power developed by a larger trawler could be deduced from powers measured on this vessel when trawling and running free.

Trawling tests were carried out during fine weather in a depth of 30 fathoms on a smooth and level bottom of estuarine mud. The method was to tow at constant engine settings into, across and down the wind. The ship was kept on each course for a sufficient time to get a series of steady readings. On the fourth side of the square the engine settings were altered to give increased trawling speed. In this way figures were obtained at three different speeds, using a trawl with a rope bosom. The highest speed runs were repeated using the same trawl with 15" diameter spherical steel bobbins.

The power required to drive the ship running free at speeds from three to five knots was measured in the

(Continued on page 32)

Three recently delivered shrimp trawlers built by Diesel Engine Sales, Inc., St. Augustine, Fla. Top: "Carl Chilton", owned by N. A. Hardee Jr., Brownsville, Tex. Center: "Gertie L", owned by Andrew Ledet, Galveston, Tex. Bottom: "Belvedere", owned by B. J. Litrico, Tampa, Fla. The "Carl Chilton" and double-rig "Belvedere" are 67-footers powered by D342, 150 hp. Caterpillar Diesels; the 62 ft. "Gertie L" has a 6-71, 165 hp. General Motors Diesel. Each boat has a Stroudsburg 515½T hoist.

More Trawlers from St. Augustine Builder Join Shrimp Fleet

New shrimp trawlers continue to slide down the ways of Diesel Engine Sales, Inc., St. Augustine, Fla., at an accelerating pace. The yard launched its 700th fishing boat, the *Carribbean Sea,* in February, and since that time nearly 50 more vessels have been constructed.

The majority of trawlers now coming from Diesel Engine Sales are built to specifications of the yard's standardized 67-foot hull. This model has an 18'6" beam, 6'6" draft, has tonnage of 63 gross and 30 net, and carries 5000 or 6000 gallons of fuel and 650 gallons of fresh water.

Also in production is a 62-footer which has beam of 18', draft of 6' and tons at 53 gross and 25 net. Structural members are the same as for the 67-foot model, but tank capacity is less, providing for 4000 gallons of fuel and 330 of fresh water.

Two recently built 62' shrimpers are the *Gertie L.,* owned by Andrew Ledet of Galveston, Tex., and the double-rigged *Estofleet,* owned by Walter Rull of Port Isabel, Tex. A D342, 150 Caterpillar Diesel with 3:1 reduction, turning a 50 x 34 four-blade Columbian propeller drives the *Estofleet,* which has 1500-watt Delco-Remy generator, 750-watt Onan light plant and 32-volt Yocam batteries. The *Gertie L.* has a 6-71 General Motors 165 hp. Diesel with 3.7:1 reduction gear, swinging a 46 x 36 four-blade Federal propeller; 3 kw. air cooled Onan Diesel light plant, Delco-Remy generator and Yocam batteries.

Gold Digger and *Hep Cat* are the latest Desco additions to the Versaggi Shrimp Co. fleet at Tampa, Fla. The yard has built over 40 boats for this firm, and the new double-rig 67-footers have D342 Caterpillar Diesels, 50 x 34 Columbian propellers, 32-volt Surrette batteries, 2 kw. Onan generators and 1500-watt Petter Diesel light plants.

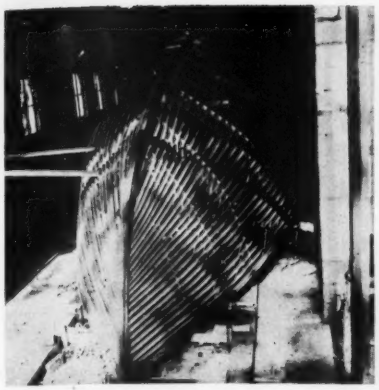
West Shore Shrimp Co. of Tampa has the new double-rig *Capt. Pete,* and N. A. Hardee, Jr. of Brownsville, Tex. has the *Carl Chilton.* These 67' shrimpers have D342 Caterpillar Diesels, 50 x 34 Columbian propellers, Delco-Remy generators, Onan light plants and Yocam batteries.

Diesel Engine Sales has delivered the 67' *Tia Delta* to Doro Besterio of Brownsville, and the 67' *Belvedere* to B. J. Litrico of Tampa. Both of these double-rig trawlers have D342 Caterpillar engines, Columbian propellers, Delco-Remy generators, Yocam batteries and 1500-watt Petter Diesel light plants. A similarly equipped boat, with the exception of a 2 kw. Onan generator, has been built for A. M. Adams of Key West, Fla. She is the *Barbara Ann,* and joins over a dozen other Desco trawlers built for this owner.

The 25th boat built by Diesel Engine Sales for the Peterson family, the *Sunflower,* has been completed for D. S. Peterson of Fernandina Beach. Her equipment duplicates that of the *Barbara Ann.*

Another recent delivery was the 67' double-rig *Ole,* built for Ocean Products of Tampa. She is powered by a 6-110, 210 hp. General Motors Diesel with 4.5:1 reduction gear, turning a 50 x 44 four-blade Columbian propeller, and carries 1500-watt Delco-Remy generator, 1500-watt Petter Diesel light plant and Yocam batteries.

All of these eleven recently built Diesel Engine Sales trawlers are furnished with Model 515½T Stroudsburg hoists, with two winch heads on those that have the "Texas" twin rig fishing gear. Other items of equipment on the boats are Goodrich Rubber Cutless bearings, Tobin Bronze shafts, Walter Clean-Flo keel coolers, 7" Ritchie compasses, Bendix depth recorders, Columbian rope, Madesco tackle blocks, Gloucester Sea Jacket paints, Navicote anti-fouling paint, One-Mile-Ray searchlights, Kidde fire extinguishers and Styrofoam hold insulation.



Left: Frame of the form for the Fiberglas boat "Arpege". Center: After all stations were set in place and fore and aft ribbands secured, a plastic film was stapled over the ribbands to prevent resin materials from sticking to the form. Veneer was diagonally stapled over the form as a base for Fiberglas lamination. Right: Fiberglas cloth was laminated fore and aft or could have been laid from keel to gunwale.

46′ Fiberglas Research Boat Points to Reinforced Plastics For Fishing Craft

Jan S. Irvine*

So many things man has designed and built through the years have undergone change. His boats and ships are no exceptions. Woods were the only materials suitable for fashioning his boats for centuries. They are bouyant, tough to a degree, can be bent, fashioned and worked, and give a reasonably good account of themselves overall. These natural properties combined with their ready availability at the waters edge of most every country on the globe further prompted their use.

Man in his search for better materials and ways to build his ships turned from wood to iron. The British built the first riveted iron hull. The plates were cast. Other countries followed and soon all the maritime nations of the European continent were building iron ships. From iron the change went to steel. Again it was the British who were first. They built steel ships of great size, by using countless numbers of rivets to secure the flat and formed sheets into the hull.

Standing, timber is a living, growing, organic plant of great beauty. At the ways and in the boat, it is dead and being organic is subject to the ills that befall wood. Notwithstanding the practicality of wood and steel in the fashioning of boats, of all kinds and sizes, and for limitless duties, these materials like most materials have their limitations. A wooden ship is only as strong as her fastenings. Wood rots and is destroyed by worms. Those who live on the water will always remember the ring of the caulker's hammer to keep them tight or reasonably so. Steel and salt water are not friends. Steel craft require a high order of care as do wooden vessels.

Extensive research has gone into the suitability of Fiberglas and resins as an intelligent combination of materials and as a practice by which to build boats of a large size.

In 1957 there were some fifty thousand 12, 14, and 16 foot outboard motor driven boats built in this country, of Fiberglas reinforced plastic, including a variety of sail and power boats up to a length of 30 feet. There were a number of reasons for this. The molded Fiberglas boat struck the public's fancy, because of its simplicity, and honesty of concept and construction. Fiberglas boats are virtually woodless and seamless. They have few if any fastenings, have no caulking, and will not rot or corrode. Of all the uses for which Fiberglas is suited, there is no more honest or practical assignment than in fishing boats. The molded boats are tough and they will withstand abuse greater than boats built of other materials. They can be damaged, of course, but may be repaired by the novice with a repair kit.

The combination of Fiberglas and Resin (all boats are molded of a Polyester resin) is not unlike a concrete structure. In the case of the structure, steel acts as the strength agent, the reinforcement and the concrete acts as the filler. In the Fiberglas reinforced plastic boat, the fibrous glass is the reinforcement while the resin is the filler, the material which protects the glass and lets it do its work as a strength agent. The resin or plastic sets up hard and will take a great deal of severe punishment.

Three men, George Hoffman, naval architect, Fort Lauderdale, Fla.; Jean Filloux; builder; and Jan S. Irvine, president, Glass Plastics Corporation, Linden, N. J., faced the problem of constructing a large boat in Fiberglas and Resin without building a mold as there was to be only

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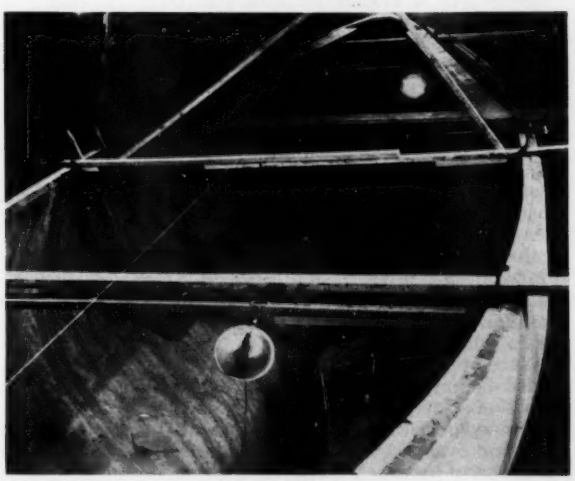

The hull, turned over and all stations and fore and aft ribbands removed, showing empty shell with mahogany interior and laminated Fiberglas, polyester resin exterior. Ballast of reinforced concrete was poured into the well.

* President Glass Plastics Corporation, Linden, N. J.

North Carolina Oyster Industry Expanding

Increased planting of seed oysters, leasing of additional grounds to stimulate production

Fishermen planting seed oysters on Pamlico Sound near Cedar Island, North Carolina.

NORTH Carolina oystermen this spring launched a stepped up, long-range program, quietly alerting the Atlantic Coast and Gulf industries that the state is preparing to compete seriously with Virginia, Maryland, Louisiana, and Long Island Sound. Whereas other states also have rehabilitation programs, North Carolina is bending its efforts in two directions: rehabilitation plus expansion.

Emphasis in the present stage is on production, to overcome the disasterous effects of hurricanes and reckless dredging. State assistance for public rocks is being given. Some private grounds are being leased. Simultaneously there is reorientation in market attitude on processing, distributing, and selling. And there is a nascent awareness of the vast dollar potential if North Carolina oystermen will unite to face common problems by intelligent planning.

During March, 360,000 bushels of seed oysters were planted in waters of Carteret, Pamilco, Hyde, Dare, Onslow, Pender, New Hanover, and Brunswick counties. The transplanting in selected waters was done through the State Department of Conservation and Development, under the advisory supervision of Dr. A. F. Chestnut, director of the University of North Carolina Institute of Fisheries Research at Morehead City. The seeds were taken from natural lumps near mouths of rivers emptying into sounds.

Allocation of $76,000 for seed purposes was made by the last state legislature, with an additional $9000 entailed in labor costs of loading shell. Commercial fishermen were paid 25 cents per bushel for catching and planting oysters with a maximum restriction of one boatload per day. The limitation, officials say, produced better grade oysters and less trash.

The next phase of rehabilitation came in May, when 162,000 bushels of shells were planted in favorable waters. According to North Carolina law, 50 percent of the shells must be returned to the state by dealers.

Private Leasing

Most members of the industry in North Carolina already feel that government planting of seed oysters and shells on public grounds is one major factor in the success of the rehabilitation program, declares Charles D. Stewart of the Fish and Wildlife station at Beaufort. A second factor, Stewart says, is the leasing of grounds to individuals for private beds.

Although the State today has 4,300 privately leased acres and over 100,000 public, "greater emphasis ought to be turned to private leasing," in the opinion of Dr. Chestnut. Substantiating the same view is Dr. Harold Humm of Duke University, former director of the Duke Marine Laboratory at Beaufort, who believes that "because many of the best oyster-producing areas are now set aside as

North Carolina State Conservation and Development personnel; left to right: Dr. A. F. Chestnut, Director of N. C. Institute of Fisheries; C. Gehrman Holland, head of Commercial Fisheries Division; and Ed Kirk.

public beds, the state is producing only a fraction of what it is capable." Further examining the subject, George M. Woodward states in an economic analysis of commercial fisheries published by the University of North Carolina, Bureau of Business Services and Research:

"Given equal growth and mortality rates . . . less predation, and the somewhat lower cost of common labor here, the strong probability is that private oyster farming would be economical in North Carolina . . .

"It is reasonable to suppose that the yield per acre in this state could be raised to equal that in Maryland, since an average productivity of 30 bushels an acre for half of the oyster bottoms in the United States has been advanced (by Paul Galtsoff) as a reasonable goal.

"Raising the North Carolina productivity to the level of Maryland would more than double the catch and would add nearly $700,000 a year to its value."

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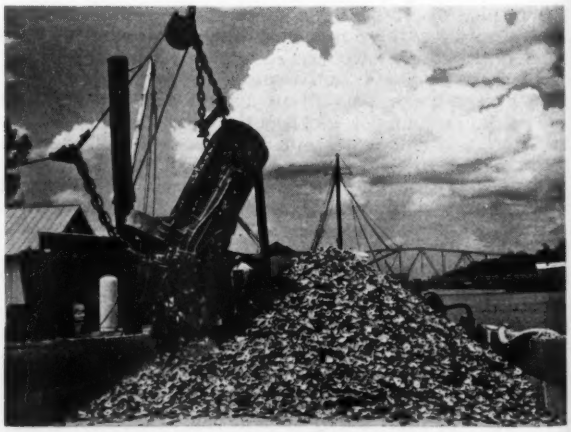


Loading oyster shells on a North Carolina barge in preparation to seeding.

Trolling Gear on Pacific Coast

A productive method of fishing salmon and albacore*

Capt. Jesse Weinel, Crescent City, Cal., uses his 46' troller "We" to fish crabs, salmon, and tuna. She has a 160 hp. Gray-marine Diesel with 1.5:1 Twin Disc reduction gear.

THE early history of ocean trolling in California was so linked with the salmon fishery, that for many years trolling meant salmon fishing, in spite of the fact that early surveys mention small scale trolling for bonito, barracuda, yellowtail, and albacore.

In the early 1880's salmon trolling was practiced by a few sportsmen on Monterey Bay. Commercial trolling through the 1890's amounted to little, until the discovery of the mildcuring process which made it possible to hold large quantities of fish and stimulated salmon trolling.

Around 1900 most of the albacore catches were made by the live bait method. Trolling became an important preliminary step as the bait boats trolled several lines when searching for fish. But, trolling, called jigging, yielded so much fish that a few boats, too small for bait tanks, began using the troll lines as their only gear. Trolling had several advantages. A less costly boat could be used, fewer men were needed, and the gear was less expensive.

Bait Fishing and Trolling

Essentially, the bait method was to troll until fish were located. The boat was stopped and live bait or ground fish was thrown out as chum, until a school was actively feeding about the boat. The fish were caught by means of a short bamboo jack pole, short line and a lure or baited barbless hook. The commonly used lure was a bone or metal head with bright eye and brightly colored feather streamers.

It is not uncommon for an albacore boat to find bait fishing too slow and the crew will turn to trolling. Occasionally the delivery by a bait boat is as high as 90 percent jigged albacore.

Live bait fishing makes large catches during the peak of the season, but the investment in boat, bait net and other gear is heavy. Trolling is much cheaper and will produce when a bait boat cannot operate because of scattered fish.

In general the king salmon is taken deep while silver salmon and albacore are taken near the surface. The depth at which kings may be hooked varies from six to more than 35 fathoms, but normally the depth is about 25 fathoms. Albacore are taken frequently with a lure along the top of the water or at one to five fathoms.

Trollers fish at one or two knots for king salmon and two to three for silvers. Albacore take the lure at higher speeds up to 10 knots, but it is difficult to pull the lines at that speed, so most albacore trolling is done at six.

Larger boats with powerful engines have difficulty slowing down to two knots, especially when running before a following wind. A few use a sea anchor to retard speed. A home-made type is an equilateral triangle of plyboard about two and a half feet on each side. If there is a danger of tangling fish lines, one of the chain bridles may be shortened to kite the sea anchor outward. The lower corner of the board may be weighted with 12 or 15 pounds of lead to keep it below the surface.

Trollers vary in size from 16-foot skiffs to vessels 60 feet long, with the majority between 35 and 45 feet. The number of boats under 30 feet has declined in recent years. The general trend has been toward larger trollers especially in beam and depth, to accomodate larger engines and larger iced fish stowage space below deck. Some trollers carry a steadying sail and most employ small boat stabilizers.

Nearly all outriggers used by trollers are made of wood, the majority being eucalyptus. Occasionally a 10-foot section of galvanized pipe serves as a base into which a wooden pole is fitted. Some main poles are the length of the boat and the bow poles two-thirds that length, though most poles are longer than the boat, ranging from 25 to 60 feet. The bow poles are about 20 feet long.

Poles and Gurdies

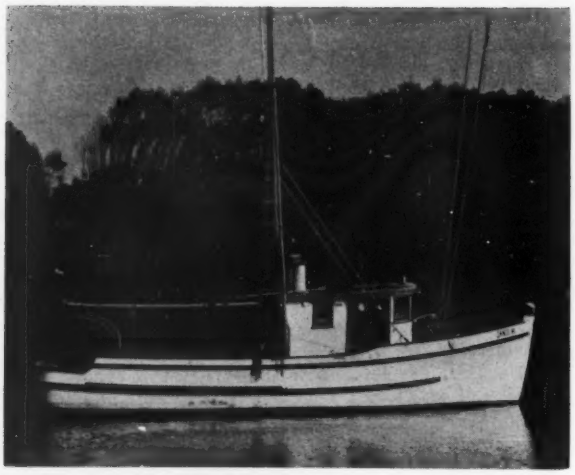
The butt of the pole is set in a metal bracket at the gunwale opposite the mast, which is a little forward of amidships. Bow poles, when used, are set in metal brackets on the deck forward of the mast. The main pole is guyed forward by two galvanized steel wires or by two bridles and is guyed aft on the outside of the gunwale near the stern. The poles are slanted forward of a right angle to the boat. Near the top of the mast is a notched crosstree into which the poles may be saddled when not in use. The pole is held in place by a lift line which passes through a block just under the crosstree. The pole may be lowered to any angle by the lift line, usually with the pole tip 8 to 10 feet above the water. The main poles are fished at an angle of 20 to 35 degrees to the water.

It is not known when the first pulling of troll lines was accomplished by powered gurdies. As early as 1920 some salmon trollers at Noyo were experimenting with home-made drums powered by rod and gearing off the main engine. One drawback was the lack of easily detachable leaders so that only the main line could be wound on the drum. After 1934, factory made gurdies and steel troll lines were on the market and the bigger boats were pulling the wire lines by power.

The use of gurdies was never standard practice among albacore trollers, although there was some power pulling until it was determined that hand pulling was faster for albacore.

The gurdy is powered from the boat's engine and consists of two sets of spools, one set on each side of the cockpit arranged fore and aft. There may be two, three, or four spools on each side, but the standard is three. Each spool may be controlled individually by a clutch, brake and reverse gear. The main line may be fed through a block at a stern quarter davit and then directly to a spool. More frequently an overhead cross frame carries a second block. The object is to keep the lines high enough overhead to allow fishermen to work underneath in the cockpit. Crossframes and davits usually are of steel tubing.

* Based on information written by W. L. Scofield, Marine Fisheries Branch, California Department of Fish and Game.



The 41' troller "Janie W" of Capt. Ray Stone, Lodi, Cal., is equipped with Graymarine Diesel, Wood Freeman automatic pilot and 6-spool Kolstrand salmon gurdies.

In most commercial trolling, the outrigger poles are used to spread the fishing lines beyond the beam of the vessel, so that more lines may be fished without tangling. As some of the lines may be 30 feet beyond the gunwale, there must be some arrangement for pulling the lines to the cockpit before they can be hauled aboard. It is desirable to have the fishing lines detachable from the pole so that they may be stowed separately.

Trolling Lines

A simple arrangement is now used by most trollers, especially salmon fishermen. A line is attached to the pole, and is as long as the distance between where it is attached to the pole and the place it is secured when not in use. This tag line ends in a wire snap to engage a short line ending in a ring of metal or a porcelain insulator. The main line threads through the ring and then to a block hanging from the stern davit and on to the gurdy. A stop engaging the ring, would throw the full strain of the main line on the outrigger pole. As the main line runs free through the ring, much of the strain falls on the block and gurdy. Shock absorbers on the davit block are very desirable. In this arrangement there is no separate inhaul. The segment of the main line from the ring to the block serves that purpose. The wire snap allows for quick disengaging of the tag line.

A wide variety of material are used for tag lines, such as hemp rope, heavy cotton fish line, cotton rope, stainless steel wire, and plastic lines. Each outrigger fishing line is attached to the pole by a tag line. The tag lines are usually spaced five feet apart along the pole, commonly numbering three or four per pole. There is often a breaker cord at the end of the tag line to protect against snapping the pole if the main line hangs up on an obstruction.

To offset the sudden and heavy strain on the outrigger pole, when a heavy fish strikes, some sort of shock absorber is used. Among salmon trollers, it is usually a coiled metal spring, 18 inches long, attached to the pole before the tag line. Albacore fishermen more often use one of several elastic materials. Sometimes additional smaller shock absorber is inserted at the far end of the tag line. When the main line runs free through the ring of the tag line, the strain at the pole is further eased by the coiled spring shocks supporting the troller block at the davit.

Most pole shocks have a safety loop of strong cord made fast to the tag line on each side of the shock, so that if the elastic material is stretched beyond the breaking point the main line will not be lost. If the shock is a straight tube the safety cord is wrapped around the shock allowing sufficient slack.

Many different materials are used for main lines with experimentation being done on plastics for use as lines and leaders. Salmon trollers generally pull by gurdy and prefer wire, solid, twisted, or braided. Most albacore fishermen pull by hand and prefer a line that is easier on the hands. Cotton line of 72 to 108 thread is common. Extra hard line is chosen because it coils easily and is less apt to kink. Wire lines are galvanized, stainless steel, bronzed, or plow steel usually twisted or braided.

The general rule, in both salmon and albacore trolling, is to arrange the lines with longest at the tip of the pole and becoming progressively shorter toward the base. There are many variations. One or two stern lines may be used for salmon and two to five for albacore.

The boats carry an abundance of line and 100 to 150 fathoms may be wound on a gurdy spool. It is easy to change the amount of line payed out to better fit the fishing conditions.

Two types of lines are recognized as those from the pole and those from the stern, aft of the gunwale. In general, more and shorter lines are used for albacore than for salmon fishing. The salmon boat averages three lines per pole and one or more stern lines. Most albacore boats carry four lines per pole, plus two to five stern lines.

The leader is a short line bearing the lure. The forward end is attached to the main line. As it is usual in albacore trolling to fish one lure per line, the leader is made fast to the end of the main line. In salmon trolling, several lures are fished per line; therefore, the leaders are attached at intervals along the main line. The intervals are somewhat longer than the leaders to avoid tangling.

With the development of plastics, monofilament nylon, and braided dacron most leaders are made of those materials. A short wire is placed just forward of the lure to prevent the teeth of the fish from cutting through the leader. The average overall length of an albacore leader is 18 feet.

Lead weights have been preferred for sinkers throughout the years, as lead does not corrode in salt water and can be molded into any shape desired. However, it is expensive. The lead cannon balls sometimes snag rocks and are lost. Leads may be useful for sinking one line below the other to avoid tangling, especially with stern lines. If the stern lines are used, the bow lines carry the weight.

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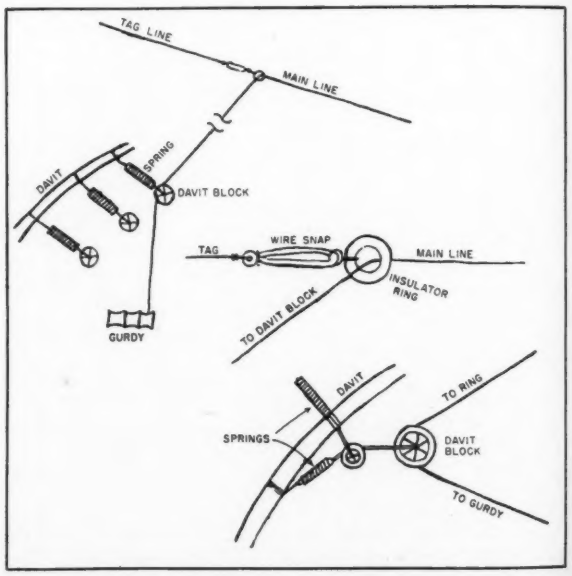


Diagram to show use of insulator ring at the end of the tag line. The main line runs free through the ring to the davit block and then to gurdy. Lower corner illustrates the use of two shock absorbers and a double block arrangement of the davit.

SOUTH ATLANTIC

Florida Trawlers Find Big Shrimp Beds

Shrimp trawlers from Fort Myers, making experimental runs off the mouth of Tampa Bay recently, were surprised to strike thousands of large, edible shrimp which started a rush to the area by other shrimpers.

Catches weighing as much as 3,000 pounds were registered by many of the 70 trawlers which hastened to the scene when the news of the strike got around.

Best returns were obtained in a spot from three to five miles out in the Gulf of Mexico off Blind Pass.

This was the first occasion in about four years that shrimp suitable for human consumption has been found in this area in such large quantities.

A valuable new shrimp bed was discovered last month near Apalachicola, and an estimated 150 shrimp boats from all over Florida and as far west as Louisiana converged on the area to get in on the find.

One boat, the *Lyco XII* docked at the Franklin Fish & Oyster Co. with a catch of 15,000 pounds of shrimp, after being out only three days.

The majority of the shrimp caught were the pink variety but some white shrimp also were caught. And despite the big catches, the price stayed up.

The boom in business has brought a shortage of ice for refrigeration purposes and dock owners have been bringing in ice from as far away as Panama City.

Tarpon Springs has benefitted from the new shrimp finds with about 100,000 pounds being processed recently. The new ground has the advantage of eliminating the long run to the Campeche Banks off Mexico or the Tortugas near Key West.

Shrimp production from the Sanibel beds increased recently and during April—until the 27th—production from the Sanibel beds which stretch from Naples to Boca Grande was 264,670 pounds. The entire March production was 93,640 pounds; February was 6,590 pounds and January only 500 pounds.

Florida Using New Methods To Attack the Red Tide

The poisonous red tide is to be attacked along different lines, according to scientists of the Fish & Wildlife Service and the Florida State Board of Conservation.

They believe that continuing research is needed to check conditions along the Florida shore. Biologists have been studying the red tide micro-organism for nearly 11 years and it is thought a microbe may be discovered which will attack the tide microbe.

During the appearance of red tide in Florida Gulf waters last fall, huge quantities of copper sulphate were broadcast where concentrations of the organism were noted and it was believed to be the most effective weapon available in fighting the scourge. The expense involved, however, built up an unfavorable reaction to it. The Federal and State bureaus are to cooperate in further efforts to eradicate the tide.

A feature of the red tide study of the Marine Laboratory of the University of Miami, being made for the Florida State Board of Conservation, has been the use of "drift cards" to ascertain current movements in the Gulf of Mexico.

Four thousand cards which are printed in bright red, were sealed in pyrex tubes and dropped in the Gulf at different locations.

Drifting for approximately two years before it was retrieved, one card dropped in Apalachicola Bay on the Northwest coast of Florida, was found near Tavernier, far down on the east coast of the state.

The 40' crab boat of Nathaniel H. Parks, Solomons, Md., "Ivy R. Jr.," has a 100 hp gas engine and 18 x 20 Columbian propeller. Exide batteries, Danforth anchor, and Ritchie compass are among the equipment. She uses Gulf fuel and lubricating oils and is finished with Gloucester Sea Jacket paint.

After traveling as many as 800 miles, a batch of cards broadcast along the Gulf coast about fifty miles more to the west, were hauled in off the Texas shore. More than six months were consumed in making this trip. A card that was recovered off Matamoras, Mexico, was in the water nearly a year.

Marking Shrimp with Dyes in Miami Lab

The Fish & Wildlife Service and University of Miami marine laboratory, in Miami, Fla., have been marking shrimp with red, blue and green dyes to study their growth, movements and death rates.

The dyes don't affect the shrimp's eating quality and show up in the head section, removed before eating.

Anyone catching any of the colored shrimp is asked to save them, note the date and place they were caught and notify the University's marine lab, 1 Rickenbacker Causeway, Virginia Key, Miami 49, Fla., or the Fish & Wildlife Service in Miami.

Fish Officials Meet in Morehead City

Marine fisheries executives from Florida, Georgia, North and South Carolina met last month at Morehead City, N. C., to discuss matters of interest to fishermen in that section.

Florida and Georgia's complaints that their shrimpers are not permitted to shrimp where North Carolinians shrimp in North Carolina waters could not be verified. Commissioner C. G. Holland, of North Carolina, said he would like to learn of some specific instances and assured the out-of-staters that North Carolina was willing to reciprocate on shrimping privileges.

The effect of poisonous sprays to kill insects was discussed and it was reported that the agriculture department's plan to undertake widespread spraying to kill the fire ant would be dangerous to shrimp and small fish.

Exploratory fishing was reported on by Seton Thompson, Fish & Wildlife commercial fisheries director of the Gulf and South Atlantic region. Mr. Thompson said attempts are being made to get a research vessel in North Carolina for an entire year.

Announce Blue Crab Tagging Program

A program of blue crab tagging has been announced by the U. S. Fish & Wildlife Service to be carried out in the Neuse River and Pamlico Sound, N. C., during the coming Spring, Summer and early Fall. Some 7,500 red plastic tags will be attached to the crabs by stainless steel wire. A reward will be paid for each tag returned to the Fish & Wildlife Service at Washington, D. C.

The study has several purposes, including the determination of the size of the Neuse River crab population, the migration of adult crabs and to obtain information on the fluctuation of the crab population in that area.

"Highpockets" was built for Capt. and Mrs. W. J. Pyron of St. Mary's Ga. by Morehead City (N. C.) Shipbuilding Corp. She is powered by a General Motors 6-71 Diesel with 4.5:1 reduction gear. Included in the equipment is a Bendix depth sounder, Stroudsburg hoist, Jabsco bilge pump, Danforth anchor, and Wall manila rope.

Maryland Oyster Planting Project Termed Success

According to Ronald McGlaughlin of Fishing Creek, the completed planting of about 37,000 bushels of seed oysters in the Honga River should result in a higher take of oysters in the future. The oysters were planted on rocks that should produce the highest quality of market oysters.

Approximately 10,000 bushels were taken up by dredge boats from the deep waters of Bentley's channel in the Honga and planted off lower Hooper's Island. The balance of the seed oysters were taken up by tongers from Tar Bay and planted on rocks at Windmill and Town Huddle areas of the middle Honga.

Dredging operations were curtailed by inclement weather, otherwise the planting might have reached the originally planned 50,000 bushels.

Challenges Maryland on Closing Oyster Grounds

Allan A. Sollers a private oyster planter in Anne Arundel County, Md., has challenged the state's right to close off his leased oyster grounds during duck hunting season each year.

He asked the court to restrain the Maryland Tidewater Fisheries Commission from interfering with his dredging of 16 acres of oyster bottom he has leased one-quarter mile north of the Patuxent River Bridge, Calvert County.

A 1957 Maryland law provides that there shall be no dredging in the area north of the bridge known as Caney Creek between December 1 and January 15 each year. The dates cover the duck hunting season and there are a number of duck blinds in the river.

The fisheries commission interpreted the law to apply to privately leased oyster bottom as well as public beds and it is this interpretation which is being challenged by Sollers. Sollers further argues that if the state agency's interpretation is correct, then the law is unconstitutional because it deprives him of use of his property without due process of law.

Somerset Crab Season Opens

The 1958 crabbing season for lower Somerset County, Md., watermen opened on May 1 and more than 50 crabbers were expected to take to the waters of the Chesapeake Bay. The season legally opened on April 1, but prolonged cool weather curtailed the number of crabs caught during the first week of the season and most of the watermen decided to wait until warmer weather.

Crab-potters from Crisfield report that hard crabs have been scarce since the season started and some watermen say they believe the freezing weather of the past winter months killed off a large number of the crabs.

Also there is reported to be more grass or seaweed on the bottoms than for several years and potters have found that the grass has accumulated in such an abundance since they started putting out their pots that they have had to move them to other sections where there is less grass.

However, the river bottoms are said to be literally filled with small crabs and it is believed that by the middle of June or the first part of July there should be a large increase in the catch of both hard and peeler crabs.

Joint Try to Settle Md., Va. Dispute

A joint Maryland-Virginia Commission named to seek an out-of-court settlement in the fishing dispute between the two states met at Mount Vernon May 18. They conversed in friendly fashion and laid plans for future talks on June 23-24 in Annapolis, Maryland.

The Maryland legislature sought to abrogate the historic 1785 compact between the two states governing fishing rights on the Potomac owned by Maryland, and Virginia took it to the Supreme Court. Virginia appealed to the court on the grounds that Maryland could not by its action alone break the compact giving Virginia equal fishing rights in the river. The Commission members agreed that the problem involved two broad questions—conservation laws and enforcement of such laws.

They decided to delve into conservation laws first, and will discuss oyster regulation problems at the Annapolis meeting. Maryland has contended that Virginia has violated the spirit of the compact by tolerating violations by Virginia oystermen of anti-dredging regulations.

Oyster Research Report Given

John W. Blake of the University of North Carolina spoke recently before the Association of Southeastern Biologists in convention at Florida State University. He told the group that researchers from his University were on a hunt for a substance which may enable men to trap enemies of the oyster before they eat the juicy bivalves.

Experiments with the oyster drill show younger and more rapidly growing oysters are the principal victims—perhaps because they give off some attracting substance during metabolism.

Other experiments lend support to the idea that drills gain entrance to the oyster not only by mechanical drilling but by secreting a chemical which wears away the shell.

In another study dealing with oysters, Dr. R. W. Menzel and F. E. Nichy of the Florida Oceanographic Institute reported on experiments in Alligator Harbor near Tallahassee which show oysters clinging to the undersides of reefs only two to four inches above low water level were victims of predators while those on tops of reefs near high water level were victims of temperature changes.

The ideal situation was found to be along the sides of reefs six inches to a foot above mean low water level.

South Carolina Clam Industry Shows Steady Improvement

The rapid rise of the clam industry in South Carolina is clearly shown by a study of the statistical records of clam harvests. From 1950 through 1956 the state harvested an average of 1,050 bushels of clams annually. In 1957 the harvest amounted to a few more bushels, but during the first three months of 1958 some 5,000 bushels of clams have been gathered and sold from South Carolina waters.

The Bears Bluff Laboratory estimates that the final annual harvest of clams from the state's waters this year will exceed 9,000 bushels.

One of the reasons for the steady improvement in the clam industry is the fact that one of the largest canning companies in the country is processing the greater portion of South Carolina's clam production and turning it into clam chowder.

Industry-Sport Fishing Harmony Stressed By Southeastern Fisheries

Recently elected officers of the Southeastern Fisheries Association. Left to right: Wes Bailey, Jacksonville, Fla., president; John C. Ferguson, Fort Myers, Fla., chairman of the board; A. M. Adams, Key West, Fla., vice president; John Rosenberg, Tampa, Fla., Secretary.

The setting of a national trend toward better cooperation between sport and commercial fishermen was evidenced at the sixth annual convention of the Southeastern Fisheries Association in Jacksonville, Florida last month. J. Roy Duggan, Seapak Corp., St. Simons Island, Ga., Board Chairman of the organization, stated that the most important single job being done in the fishing industry is the joint work by the two groups to improve conservation. "The fact of the matter is that we have always had a lot more in common than we have had differences," Duggan added.

Charles E. Jackson, general manager of the National Fisheries Institute, told the meeting the cooperative trend established in Florida is being adopted on a national basis.

"Florida is the first place where sportsmen and commercial fishermen have learned the value of mutual support, but on the national scale, Ross Leffler, Assistant Secretary of the Interior for Fish and Wildlife, is developing the trend," Jackson said. He pointed out that Leffler has appointed an advisory committee made up of representatives of both groups. "This is really significant, as the important thing has never been the fight over who controls the resources but rather that they may be used wisely," Jackson added.

Dr. H. R. Wilber of Deland, serving his third term as president of the Florida Wildlife Association, said that the hatchet was buried between the groups three years ago at the annual meeting of his association.

It was not too many years ago, the Southern speakers agreed, that if either group heard the other was trying to get some legislation passed, it would fight it on general principles. They both operated on the theory that what was good for one couldn't possibly be good for the other, Wilber declared.

"The last session of the Florida Legislature is the first time in the history of the country that commercial fishermen and sport fishermen ever got together to support joint programs," Duggan said. Commercial fishermen have always opposed the sport fishermen's objective to have snook a game fish, he stated, but after discussions the commercial fishermen not only agreed not to oppose this wish but worked to have the fish classified as a game fish.

At the same session, Wilber said, the sport fishermen agreed to oppose and obstruct any new legislation creating local laws that would create opposition to commercial fishing.

The Southeastern Association adopted five resolutions in support of conservation efforts. John C. Ferguson, St. George Packing Co. Inc., Fort Myers, succeeded J. Roy Duggan as chairman of the board. Wes Bailey of Jacksonville succeeded Ferguson as association president. Other new officers are A. M. Adams, Thompson Enterprises Inc., Key West, vice president; R. B. Davis, Davis Seafood Co., Cedar Key, vice president; Frank Bentley, Bentley & Felton Corp., Key West, treasurer; and John Rosenberg, Florida Fishermen's Supply Co., Tampa, secretary.

Good Catches of Virginia Croakers Reported

Fish have been scarce at intervals, but late last month croakers, the money fish, were coming in in fairly satisfactory quantities. As usual, the catch was sporadic. Some fishermen reported getting as high as eight cents the week of May 18. However, they had been much higher, and there were some large catches when prices were at their highest. Trout and spot were beginning to come in in fairly good quantities.

Crabs were scarce last month and the prices were high with crab potters getting eight to ten cents per pound when the usual price at this time of year is around three and four cents. Catches were spotty, however, with some of the best crab potters catching about three or four barrels one day, and the following day catching eight to eleven barrels.

Fishermen in the Lower Northern Neck last month were catching some herring although they were relatively scarce elsewhere. For a decade, river herring have been abundant, but this year they have been so scarce that the canneries have operated only about half time.

Three of the five menhaden plants are operating in Virginia using pound net menhaden and herring scrap from the canneries. The amount processed has been about the same as last year. Some said the menhaden catches increased sufficiently to make up for the small herring catch.

Hampton Roads Area Landings

Hampton Roads, Va. area landings for the month of May totaled 1,271,900 pounds, brought in by 37 boats, compared with 70,000 for May of 1957 brought in by 10 boats. The largest single day's receipts were on the 13th when 9 boats brought in 342,600 pounds. Leading specie was scup with 992,100 pounds followed by sea bass and butterfish.

In the pound net fishery, landings of fluke during May were 58,200 pounds, compared with 14,100 pounds for May, 1957. Shad landings also showed an increase when compared with those of last May. This year during May 152,000 pounds were brought in and during May of last year 35,000 pounds were landed. Spot also showed an increase this May with 207,400 pounds, compared with 32,100 pounds last May.

GULF OF MEXICO

New Bill Would Change Louisiana Shrimp Laws

Drafting of proposed legislation, designed to arrest a five-year decline in shrimp production in Louisiana, has been completed. The proposed Shrimp Bill, which will be introduced at the present session of the Legislature by Rep. E. J. Grizzaffi of St. Mary Parish, was drafted under the supervision of the Louisiana Wild Life and Fisheries Commission, which has given the bill its "full approval."

Other groups which participated in the preparation of the bill and have given it their endorsement are: Jefferson Parish Fishermen's Assoc., the Lafourche Shrimp Committee; the Morgan City Group; the Louisiana Shrimp Canners and the Louisiana Wildlife Federation.

To Set Louisiana Shrimp Season Dates

Attorneys for the Louisiana Farm Bureau Federation were preparing legislation last month fixing the shrimp seasons in accordance with the recommendations of the federation's fishermen and trappers' advisory committee.

The group prefers the dates May 10 to July 31 and from September 10 until December 31.

The committee also wants a flexibility clause allowing the shrimp season to be opened 15 days earlier or later, depending on what tests indicate might be the best date.

Gulf Landings Show Improvement

Improved weather conditions for the week ending May 2 resulted in increased landings in oysters and crabs along the Gulf coast and Florida west coast area. For the same period, there was a slight decrease in landings of shrimp and fish.

The port of Biloxi reported a shrimp catch of 12,500 pounds and the week's oyster catch for the state of Mississippi was 1,335 barrels, with 1,265 of these for canning purposes.

The state's crab landings amounted to 11,700 pounds and the finfish landings were 56,400 pounds.

During April landings of snappers at Mississippi ports were the brightest spot in production with nearly 100,000 pounds being brought in. Grouper landings also were high for the month, with catches being made from both the Campeche and North Gulf of Mexico areas.

Also during April, 27 tons of yellowfin tuna were landed to record the first appreciable tuna landing for the year.

Biloxi Yard Launches New Trawler

The *Captain Lawrence*, a 64-foot deep sea trawler recently was completed at the Covacevich Shipyard, Biloxi, Miss., for M. L. Frakich of Corpus Christi, Texas.

The cabin of the boat is larger than usual because it is expected to be out as long as 35-days and the larger cabin was planned to make it more convenient for the crew.

Alabama Oystermen Planting Shells

Commercial oystermen were expected to plant several thousand barrels of oyster shells in Alabama waters by the end of last month. The shells were to be planted in the areas of Portersville and Heron Bay and around Cedar Point.

B. B. Larrimore, chief of the sea foods division of the Alabama Department of Conservation, said the department was to supervise the work. The shells were planted by the oystermen instead of having them pay a special tax.

Alabama Shrimp Production Increases

Production of shrimp in Alabama during April increased slightly over the previous month, with the total landings amounting to approximately, 87,000 pounds (heads-off). Shrimp trawlers moved west of the Mississippi River in early April and at that time good catches were reported south of Ship Shoal.

In the latter part of the month, some of the shrimp boats went to the Apalachicola shrimping grounds after the Spring run of pink shrimp began in that area. Several large loads of shrimp were trucked in from Apalachicola and Key West for canning.

Red snapper landings totaled 133,000 pounds during April. Unfavorable weather for the trammel net fishermen resulted in a sharp decline in mullet landings, as well as in light landings of crabs.

Contract for Artificial Snapper Banks at Aransas Pass

The Texas Game and Fish Commission has let a contract for the construction of the first artificial snapper banks to be located east of Port Aransas near the whistling buoy. It includes the furnishing of 200 automobile bodies, properly fastened together, and placed at a selected location in water about 10 fathoms deep.

State biologists from the Rockport Laboratory at Port Aransas will keep a close check on results which should open up a wide field in the study of redsnappers, a very valuable food fish whose habits are little known at present. Should the project prove successful, many "banks" are promised for other locations along the coastline.

Freeport Plant Under New Managers

Ocean Products Co., Inc. of Tampa, Fla. recently took over the processing plant, freezer and storage facilities of the Capt. Carl Muchowich and Sons Seafoods Plant at Freeport, Tex. Among the new equipment installed are packing room tables and a Sort-Rite shrimp grader.

Kyle Collins of the company's Florida plant is in charge of processing, packing and freezing operations at the new Freeport branch.

Jake Easterling, former plant manager for the Muchowich Company, will continue in the same position with the new operators.

The company will pack 5-pound cartons of headless, frozen shrimp bearing the Treasure Island trademark. The plant has a capacity of 35,000 pounds of shrimp daily with a storage capacity of 100,000 pounds at zero temperature.

Texas Completes Oyster Reefs

The Texas Game and Fish Commission has recently completed the construction of six new experimental oyster reefs at the extreme southern end of Laguna Madre, near Port Isabel.

Mud shell was used for the base of each reef and suitable clean material was spread over the surface to collect oyster spat.

Since a few small natural reefs are to be found in the locality, it was decided to give the area a trial in the general oyster rehabilitation project now under study for the entire Gulf coast area.

New Aransas Pass Seafood Firm Planned

Charles Sahlman and Manuel Versaggi have taken a lease on 458 feet of waterfront property from the city of Aransas Pass, Tex. The site adjoins that now occupied by the Herndon Seafoods, Inc.

The parties took the lease with the intention of setting up a new seafoods firm to be known as Versaggi-Sahlman, Inc. Both Versaggi and Sahlman are names well known in the seafood business along the Gulf Coast.

Hatteras Trawlers Improved For Increased Efficiency

Fifty-seven different improvements, to increase the working efficiency of Hatteras Trawlers, have been introduced on boats currently being produced by the Morehead City Shipbuilding Corp. of Morehead City, N. C. In all, there have been more than 140 improvements in the boat made during the last year.

The changes include a new steering system, a new engine room ventilation system, steel engine beds, new fiber glass water tanks, improved pilot house visibility, and a new muffler. Incorporating most of the new improvements of Hatteras Trawlers are two new 63-footers, with 19' beam and 7' draft—*National Seafoods I* and *National Seafoods II*—recently delivered to the Pelican Oyster and Fish Company of New Orleans, La., for operation out of Aransas Pass, Tex.

A steering rod, replacing the cumbersome sets of cables and pulleys, is the key to the new steering system. The wheel is connected by a chain to the rod which runs all the way aft with universal joints and pillow block bearings. Wear on parts is reduced and the helmsman's fatigue is lessened.

The new ventilation system includes an exhaust fan in the trunk cabin which works in conjunction with two supply ventilators on the deckhouse. The vents, of new design developed by the Morehead City Shipbuilding Corp. and fabricated at the yard, have three times the capacity of the vents they replace. The trunk cabin vent assures a more than ample supply of fresh air to the engine room even when the trawler is running battened down in heavy weather.

Pilot house visibility has been increased by the addition of windows at the top panels of both doors; and by lowering the after bulkhead in the house to permit a better view of the after deck. The deckhouse has two windows aft.

The new muffler also designed by the yard and fabricated there, is of heavier construction than the one replaced. It reduces the noise level, and its baffle arrangement eliminates any possibility of water entering the engine from outside. The muffler meets every requirement of engine manufacturers.

Other improvements include pilot house chairs on boats now under construction, improved finish in fish hold cement, enlarged Samson posts, new solid brass door locks, and improved galley water pumps. The trawlers now have double 4" x 6" header under deck beams from bow to stern, two extra braces between stem and Samson posts which are through bolted, added bolts in bulkhead frame, and new plastic paint.

"NATIONAL SEAFOODS I", the new Hatteras Trawler built by Morehead City (N. C.) Shipbuilding Corp. for the Pelican Oyster and Fish Co., New Orleans, La., will operate out of Aransas Pass, Tex. She is powered by a 165 hp. General Motors Diesel and equipped with Stroudsburg 515½T hoist designed for twin rig operation.

Fuel tanks have been re-designed and rearranged, a longer fish hold hatch is provided and additional zinc plates have been added to rudder and stern bearings. The boats have plastic bilge lines, larger and heavier cleats, and an all new electrical system with circuit breakers instead of fuses.

National Seafoods I and *II* are powered with General Motors Diesels rated 165 hp., at 180 rpm., with 4.5:1 reduction gear, furnished by Morgan's Inc., Savannah, Ga. Both boats have a 3" Tobin Bronze shaft and 46 x 36 Federal propeller. The main bilge pumps were made by Jabsco, auxiliary bilge pumps by Marine Products. The main generators are 1500-watt Delco, while the auxiliary units are 750-watt Onan.

The *National Seafoods* have four fuel tanks, each, with a capacity of 1250 gallons; a 600-gallon water tank; and a 55-gallon lube oil tank. The galley is fitted with a Real Host gas range, and there are four 8-volt Hixon batteries.

The new Pelican vessels are double-rigged, and carry Model 515½T Stroudsburg hoists, especially designed with two winch heads for "Texas" twin-boom operation. They are furnished with Wall rope and 65-pound Danforth anchors. Pilot house equipment includes Metal Marine automatic pilot, Bendix depth recorder, One-Mile-Ray searchlight and Hallicrafters radio.

Texas Shrimping Improving

Shrimp landings at principal Texas Gulf ports continued to increase with the passing of the recent stormy weather. A total of 1,425,000 pounds of shrimp were landed during the 30-day period ending May 15. In the same period of 1957 1,252,000 pounds were landed.

Some catches in excess of 1,000 pounds of 15 to 35 count per boat in a night's fishing were reported, with the average being about 500 pounds.

Edible finfish production of speckled sea trout, red drum, sheepshead, black drum and flounders from the bay waters were in good supply.

Redsnappers, mackerel, kings and groupers were taken in quantity from the Gulf. Production for the month reported was 210,000 pounds.

Reports on landings of seafoods at principal ports in the five states bordering the Gulf of Mexico for the first four months of 1958 registers favorably in all products except oysters, which have shown a gradual but steady decline over the last three years.

"Oregon" Continues Survey in Gulf For Sardine-like Fishes

The *Oregon* last month was continuing an exploratory survey of sardine-like fishes in the Gulf of Mexico.

Along the west coast of Florida, from Cape San Blas to Ft. Myers Beach between the 10 and 30 fathoms curves, extensive mid-water schools were located. The largest catch in this area was 100 pounds in a 30 minute tow.

The last three days of the cruise were spent surveying between Pensacola and the Mississippi Delta, in depths of 5 to 20 fathoms. Small anchovies were found in 7½ fathoms off the north end of Chandeleur Island.

Later in the mouth the *Oregon* continued the survey in the southern Gulf, from the northern shelves off the north coast of Yucatan to Arcas Reef on the Campeche Bank, with best indications of fish found about 40 miles N. E. of Alacran Reef in 25-30 fathoms.

Surveying also was done in the area of the north Gulf between South Pass, Mississippi River Delta and the north end of Chandeleur Island.

PACIFIC COAST

California Fishermen Enjoying Best Bluefin Season in Years

Continued good runs of bluefin, both locally and down off Mexico, have drawn San Pedro fishermen to the conclusion that they may be in for the best bluefin season in several years.

And if that wasn't enough good news, the fact that high food prices have made tuna a desirable item in the nation's markets, assures the local fleet that they probably will be able to get good prices for almost everything they catch.

The San Pedro purse seine fleet so far this year has landed about 1800 tons of bluefin, 500 tons of which was brought in in two weeks. Most of the San Pedro fleet has been fishing from San Clemante Island to Catalina Island with some scattered catches in other spots. Generally the schools have been running in a wide band extending both close to shore and quite a ways out.

Purse seiners fishing down in Mexican waters have also reported good luck. So far the seiners this year have landed about 13,700 tons of bluefin as compared to 8000 tons last year.

San Diego's fishing fleet during April landed 4,370 tons of seafood valued at more than $900,000. The catch comprised nearly 4 million pounds of yellowfin, more than 4 million pounds of skipjack and 40,000 pounds of albacore.

The clipper fleet from January 1 to May 3 landed more than 16,000 tons of tuna, a decrease of 1,000 tons from the corresponding period of 1957.

California Vessels Change Hands

The 45-ft. *Judy II* has been sold in Moss Landing by Bruce North of La Salva Beach to Sewall Magnini of Portland, Oregon. The boat, which has an enviable record, is equipped with a 6-71, General Motors Diesel. The *Judy II* was built in 1942 by Al Johnson of Seattle.

Capt. Carl Davis of Watsonville has purchased one of the largest trollers in the fleet—the 51-ft. *Rose Marie* from James Ingleton of Astoria. The troller has 2" fir planking on 6 x 6 oak ribs with 12" centers. The vessel is powered with a 200 hp. Buda Diesel.

Upon purchase of the *Rose Marie*, Capt. Davis sold his 43 ft. Monk-designed *Rondivoo* to Don Hart of Santa Cruz. The boat is powered with a General Motors 4-71, 120 hp. engine, full refrigeration, 6-spool gurdies and winch with worm drive from the main engine.

The 30-ft. Monterey clipper type troller *California* was purchased recently by Alan Richter from Jean Valleau of Avila Beach. The boat is powered by a Chrysler "Ace" 94 hp. engine, with 3:1 reduction gear. She has three-spool gurdies, crab winch and salmon and albacore rigging.

Good California Salmon Catches

The first good catches of the salmon season were unloaded in Moss Landing, Cal. recently, when Capt. Leroy Harrington on the *Peso II* brought in 4,000 pounds for the largest single delivery of the season. Capt. Arnold Ennis on the *Gladys E.*, Capt. Conrad Pederson on the *Sun-Ra*, Capt. Carl Davis on the *Rose Marie*, Capt. Don Hart on the *Rondivoo*, and Capt. Davis Danielsen on the *West Point* all made deliveries of between a half ton and a ton of salmon.

Best grounds were between Davenport and Pigeon Point on the central California coast and several days of good fishing there attracted boats from as far north as Seattle.

Some boats from San Diego and San Pedro joined the local fleet but there were fewer of these than in other years. Among those from San Pedro were Capt. Leif Reinholdtsen and his son Arnold on the *Norfjord*, Capt. Bob Ruiz and John Syfert on the *Atka*, Capt. Roy and "Babe" Johnson on the *Christe II*, Capt. Bill Skipwith on the *Nancy Jean*, Capt. Jim Butler on the *Blue Skies*, Capt. Lonnie Suggs on the *Hey Mama* and Capt. Davis Danielsen on the *West Point*.

Capt. Ole Hansen on the *Ronny*, Capt. Don Jacobsen on the *Norge*, Capt. Ted Jacobsen on the *Teddy J.*, Capt. Lloyd Myking on the *Ragnar M.*, Capt. Roy Myking on the *Ellie IV* and Capt. Earl Harbell on the *North Sea* went directly from San Diego to the central California coast fishing brounds omitting their usual stop in Moss Landing.

Shrimp Boat Operators Protest Against Japanese Competition

Shrimp boat operators in the Gulf of California and along the west Mexican coast have protested to the Mexican government against the bringing of Japanese shrimp boats and crews to those waters. The Mexican fishermen claim they cannot compete with the low production costs and wages of the Japanese shrimp fishermen.

Meanwhile, the U. S. Fish & Wildlife Service reports the arrival in Bristol Bay in the Bering Sea of the 5300-ton crab cannery vessel *Tokei Maru* to fish for and process king crabs. The first vessel of its type to leave Japan this year, the *Tokei Maru* is expected to return with 684 tons of canned crab meat, much of which will be exported to the American market.

San Diego Tuna Auctions

More than 1000 tons of tuna were auctioned off in two sales early in May, indicating that the month might be an unusually good month as far as landings are concerned.

In April only 1837 tons of yellowfin and 1682 tons of skipjack were sold in the entire month.

While sales this year have been a bit slower, prices have been higher. In 1957 yellowfin brought from $230-280, and skipjack brought from $190-241. This year yellowfin have brought from $265-285 a ton and skipjack from $225-246.

New Boat at Moss Landing

Capt. Martin Allen came into port recently aboard his new *M.A., Jr.* The hull of the boat was purchased in Seal Beach, with Capt. Allen completing cabin work himself. The 38 ft. boat is equipped with two General Motors 451's.

Tuna Hot Dog Produced at San Diego

A San Diego accountant and a Whittier, Cal. sausage maker have developed a tuna product that looks like a hot dog and tastes like meat. If it attains national distribution it may mean hundreds of thousands of dollars a year in additional income for the southern California tuna fleet. The new product, called Tunies, has two companion products. One is in the form of a sausage and is called Sea-lomi, and the other is a miniature hot dog for hors d'euvres, called a Martunie.

The men behind the new products are Bill Lane, formerly with the U. S. Holding Co., associate firm of Westgate-California Tuna Packing Co., and Curt Schirmer, veteran sausage manufacturer. Lane and Schirmer developed the Tunies with the help of Leroy Alfreds of Los Angeles, an expert with spices.

The biggest problem was eliminating the strong taste and smell. Dozens of formulas were tried with different spices and shortenings plus variations in cooking and smoking. A little-known Japanese book on tuna processing led to experiments which finally solved the problem. The next two years were spent learning how to remove the fish oil without destroying the protein.

Washington Biologists Study Pacific Salmon Origins

Biologists of the Bureau of Commercial Fisheries at Seattle, Wash., set out last month in two chartered schooners to continue the effort to determine which North Pacific salmon are Asiatic and which are American, according to an announcement by Assistant Secretary of the Interior Ross Leffler.

The halibut schooners, *Pioneer* and *Attu*, will carry biologists of the Pacific Salmon Investigations Laboratory on a four-month study which will cover the central North Pacific ocean and much of the Bering Sea.

Also participating in the high seas studies will be vessels of the Fisheries Institute of the University of Washington, the Fisheries Research Board of Canada, and the Fisheries Agency of the Japanese government. The work is being conducted under the International Convention for the High Seas Fisheries of the North Pacific Ocean.

Serving as research agency for the U. S. Section of the International North Pacific Fisheries Convention, the scientists are trying to determine the home base of salmon taken on the high seas. The purpose of the high seas investigations is to study the distribution and abundance of salmon, to collect salmon samples, for racial identification, and to continue the oceanographic survey of the area, according to Secretary Leffler.

Preliminary results show samples from the western end of the Pacific ocean, Okhotsk sea, and along the eastern coast of Kamchatka peninsula formed a group with characters somewhat different from those of the North American continent.

Opposes Columbia River Diversion

Ross Leffler, Assistant Secretary of the Interior, said last month that if the United States does not come to some early agreement with Canada on the development of the Columbia River, the Fraser River will be sacrificed as a fish stream and the West Coast fishing industry will be seriously affected.

Leffler told a Senate committee in Washington, D. C. that the valuable salmon runs on British Columbia's Fraser River would be "decimated" if Canada diverts the Columbia River into the Fraser for hydro purposes.

Leffler also expressed belief that diversion of the Columbia into the Fraser in Canada would have "deleterious effects" on the fisheries of the Columbia downstream in the U. S. Pacific Northwest.

Research biologist Robert Y. Young examines samples of salmon returned to Seattle, Wash. by the "Pioneer" in the high seas studies.

THE "MASONIC", shown in the Seattle Halibut Boat Parade. The 65' boat is owned by Einar Rice of Seattle, Wash., and is powered with a 135 hp. Atlas engine.

Seattle Halibut Boat Parade

Seattle, Wash. halibut boats, led by the *Zenith*, John B. Iverson, owner, passed through the Hiram M. Chittendon Locks, recently, in the first Seattle Halibut Boat Parade. Speakers at the occasion were Mayor Gordon S. Clinton and Mrs. Carl Johnson, president of the Halibut Fishermen's Wives Association, which sponsored the parade. After the Seattle send-off, the fleet headed for Alaskan waters, where it will operate through the summer.

Large Halibut Catch at Seattle

One of the largest single day's landings ever brought into Seattle, Wash. was recorded on May 19th, when 29 boats had catches totaling 1,378,000 pounds. Total landings for the month of May were 5,098,000 pounds.

International River Agency Proposed

Establishment of an international waterways agency for joint United States-Canada developments of the Columbia River and other international streams was urged last month by Senator Henry M. Jackson of Washington.

Jackson said the agency, proposed in a resolution now before Congress, would deal with problems of development on rivers crossing the United States-Canada border which flow into the Pacific Ocean or Bering Sea.

Jackson believes that delay in formulating such a program endangers development of water-resource potentialities in both countries, as well as a salmon industry worth many millions of dollars yearly.

Bellingham Fish Plants Filled with Halibut

Bellingham, Washington's fish-processing plants were filled with halibut on May 20 as 205,000 pounds were unloaded from the first catches of the season. Kjel Dahl, manager of the Dahl Fish Co. said the catches had so overtaxed the city's cold-storage facilities that his firm had to truck 80,000 pounds to Los Angeles for processing.

The first halibut cargo of 100,000 pounds was discharged on the 19th by the Canadian vessel *B. C. Lady* at the Dahl Company. The *Antoinette* unloaded 25,000 pounds and the *Ocean Star* 60,000 pounds the following day. Bornstein Sea Foods, Inc. received 20,000 pounds on the 20th from the *Daily*.

World's first jet-propelled fishing boat. The 40' tender, owned by Copper River Cannery Co-op, Cordova, Alaska, is driven by twin Hanley hydrojets powered by two 160 hp. Hercules turbocharged Diesels.

Jet-Propelled Fishing Boat Operating in Alaska

The world's first jet-propelled fishing boat with forward-drive jets—a 40' fish packer—is making commercial fishing history at Cordova, Alaska. The unique craft, just recently put into service by the Copper River Cannery Co-op, is propelled by twin hydrojets pioneered by Hanley Hydrojet Inc., Prospect, Ohio. Two jets of water, shot from nozzles under the hull by high pressure pumps powered by two 160 hp. Hercules turbocharged Diesels, push the boat through the sea.

Built by the Nichols Boat Works, Hood River, Oregon, the new screwless packer offers three major advantages.

It can work over and around nets without danger of fouling propellers and/or ripping nets. Drawing only 14 inches of water, it can work with complete freedom over shoals and tideflats which cannot be reached in conventional craft. In water deep enough for other boats, this would insure against damage to propellers and shafts from unseen objects, as well as shoals, rocks, and other bottom obstructions. Because there is no problem with moving parts, the twin engine drive unit can be located all the way forward, directly under the wheelhouse, leaving the rest of the boat free for a large fish hold.

The new boat reaches a speed of 10 knots and has a load capacity of 12 net tons. It is all steel construction and has a double bottom which serves as a storage tank for 1000 gallons of gasoline and 500 gallons of water to service other fishing craft. The tender operates from a mother ship gathering fish from gill netters, who thus need not leave their nets.

Urges Washington Pollution Settlement

The State Director of Commerce has urged a quick settlement of the water-pollution fight in Washington, which he feels is one of the roadblocks to economic growth in the state. The director described Washington's water supply as one of its greatest assets for attracting industry. But he said the pollution fight deters economic growth.

The interests of both the oyster-growers and pulp-mill operators could be protected, and, according to the director, other sections of the country have settled the problem and he feels that the state of Washington can do the same.

Washington Fisheries Bureau Assistant

Donald E. Powell, a native of Seattle and graduate of Washington, has been named assistant regional director of the Bureau of Commercial Fisheries at Seattle.

Powell has been with the Fish & Wildlife Service since his graduation from the University's School of Fisheries in 1949.

In 1951 he was transferred to the Service's central office in Washington, D. C. where he became Chief of the Exploratory Fishing and Gear Development Section before returning to Seattle in 1955 as Chief of the North Pacific Fisheries Exploration and Gear Research program.

Washington Herring Rules Discussed

A hearing on proposed changes in herring-fishing regulations for the Strait of Juan de Fuca and offshore waters was held last month, at the Department of Fisheries regional office at the Salmon Bay Fishermen's Terminal.

Proposals have been made to permit the taking of herring for food purposes as well as for oil and meal. The hearing also included discussions of the herring bait fishery. It was proposed that regulations and seasons conform with those now in effect in Canadian waters.

Oregon Bans Salmon Fishing in Columbia River

Officials of Oregon and Washington on May 4 ordered a ban on commercial salmon fishing in the Columbia River. The season was to remain closed until 60,000 salmon pass upstream to Bonneville Dam.

In the four days of fishing prior to the voluntary closure, gillnetters took 1,700,000 pounds of salmon from the river. That equaled the entire catch of last year's 27-day spring commercial season.

Gillnetting was to be resumed if enough spawnfish were counted passing through fishways at Bonneville Dam. The figure of 60,000 was set as a minimum, but the escapement of 100,000 salmon was preferred before fishing was resumed.

Counting Ocean-Bound Oregon Blueback

A count of ocean-bound blueback salmon fingerlings migrating from Suttle Lake in central Oregon is being made again this spring by the Oregon fish commission.

The counting experiment began in 1952 to determine if a run of blueback can be established in the lake. In 1952 and in succeeding years, young salmon have been liberated into Suttle Lake each fall.

Fish used for the project are hatched at the fish commission's Metolius hatchery from eggs made available through cooperation of the Fish & Wildlife Service.

After the fish are caught and counted, they are given a "bath" in a chemcial solution to rid them of parasites. From Suttle Lake, the young blueback are trucked to the Metolius river and released to continue their journey to the sea.

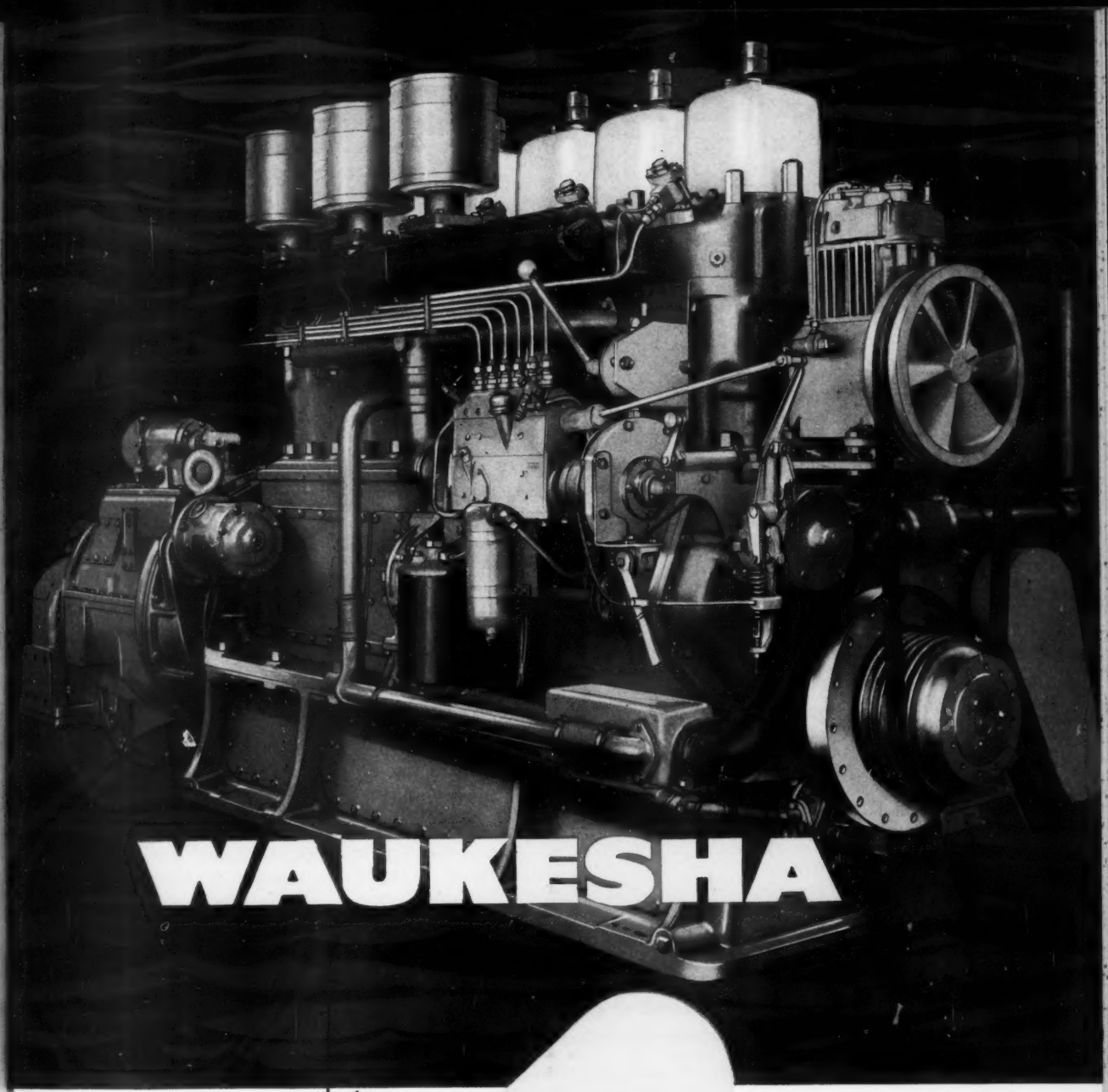
Last fall the fish commission tried a new approach towards increasing survival of blueback during the time they are in the lake. Some 100,000 fertilized eggs were buried beneath gravel in a tributary of the lake. A measure of the success of the gravel plants is being obtained by trapping young fry as they emerge from the gravel. Most of these fish are expected to spend the next year in Suttle lake and leave for the ocean during the spring of 1959.

Steelhead Petition Title Changed

A change in the ballot title on an initiative petition to prohibit commercial fishing for steelhead was ordered by the Oregon Supreme Court last month.

The high state tribunal threw out State Attorney General Robert Y. Thornton's title, "Making Steelhead a Game Fish" and substituted the following: Prohibiting Commercial Fishing for Steelhead".

The court said that Thornton's title did not measure up to requirements of the law, since the obvious purpose of the initiative was to prohibit commercial fishing for steelhead.



diesel

MARINE ENGINES

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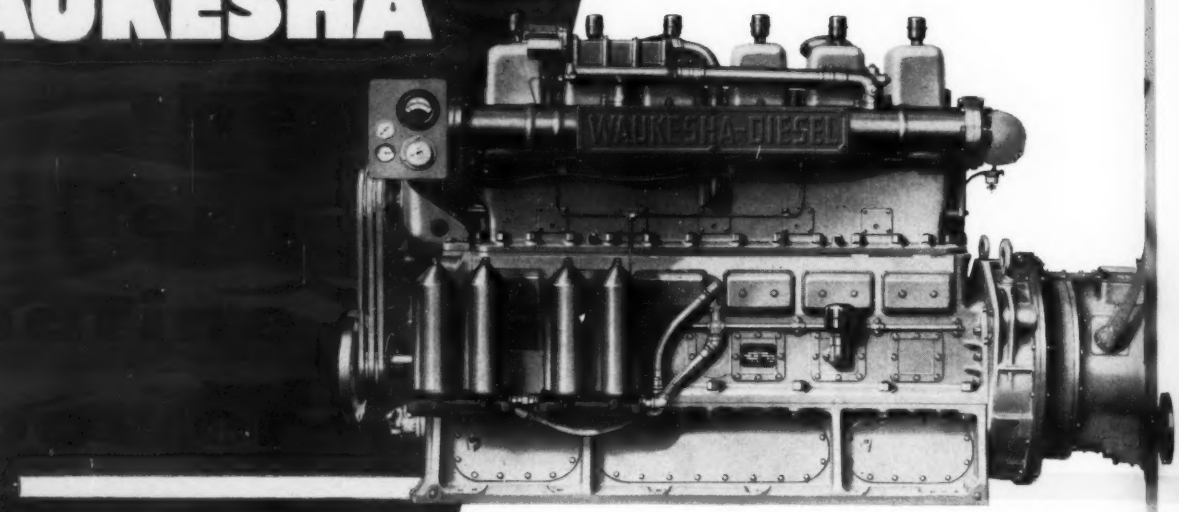
WAUKESHA



EASY STARTING
SAFETY
SIMPLICITY
SMOOTHNESS
ECONOMY

The first Waukesha Engine was a marine engine. And for the ten years that followed this company's inception over fifty years ago, most of the engines leaving the factory were used in power and pleasure craft from coast to coast.

Reference to horsepower ratings (*at the right*) and the dimensional data (*below*) will indicate some of the characteristics that have made "Waukesha" and "reliability" synonymous

WAUKESHA normal and turbocharged diesel marine engines

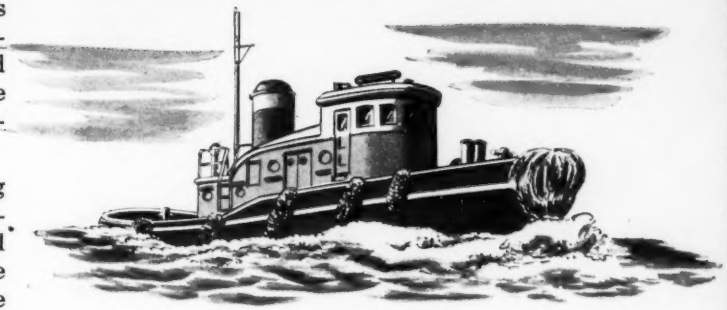
DIMENSIONS	RELIANCE (VLRD Series)	DEFENDER (LRD Series)	WANDERER (NKD Series)	RESOLUTE (WAKD Series)	VIGILANT (148DK Series)	CUTWATER (135DK Series)
Bore and Stroke	8½ x 8½	8½ x 8½	7 x 8¼	6¼ x 6½	5¼ x 6	4¼ x 5
Number of Cylinders	12	6	6	6	6	6
Displacement, cu. in.	5788	2894	1905	1197	779	426
Number of Main Bearings	7	7	7	7	7	7
Front Main Bearing, dia. x lgth.	6¼ x 4¾	5½ x 4¾	5¼ x 3⅞	4¾ x 2⅝	4¼ x 2	3¼ x 1 13/16
Center Main Bearing, dia. x lgth.	6¼ x 4¾	5½ x 5	5¼ x 4⅜	4¾ x 3 13/16	4¼ x 3¾	3¼ x 2⅜
Rear Main Bearing, dia. x lgth.	6¼ x 4¾	5½ x 5½	5¼ x 5⅝	4¾ x 3 13/16	4¼ x 3 11/16	3¼ x 2½
Inter. Main Brgs., dia. x lgth.	6¼ x 3⅜	5½ x 3⅜	5¼ x 2⅜	4¾ x 2⅝	4¼ x 2¼	3¼ x 2⅜
Conn. Rod Large Brgs., dia. x lgth.	5¾ x 3 1/16	5 x 3¾	4⅜ x 2¾	3¾ x 2⅜	3⅜ x 2¼	3 x 1⅝
Connecting Rod lgth., c. to c.	18	21⅜	15⅜	13¼	11¾	9½
Piston Pin, Floating, dia. x lgth.	3 x 7	3 x 7	2½ x 6	2 5/16 x 5⅜	1⅞ x 4½	1½ x 3⅜
Rings, compression	3/16 (4)	3/16 (4)	3/16 (4)	5/32 (4)	5/32 (4)	⅛ (3)
Rings, oil control	3/16 (2)	¼ (2)	3/16 (1)	¼ (2)	¼ (2)	3/16 (1)
Valve, intake, clear diameter	3¼	3¼	2⅞	2⅜	2¼	1¾
Valve, exhaust, clear diameter	2¾	2¾	2½	2	1 13/16	1½
Timing Gears, face width	2¼	2¼	2	1½	1¼	1¼
Flywheel Housing, SAE size	00	00	00	0	1	3
Oiling System (no lines and filters)	50 gals.	18 gals.	17½ gals.	8 gals.	4½ gals.	3 gals.
Weight, approx., lbs.*	15500	10200	7200	3850	2420	1385

*This is weight of Normal Diesel type; not including reverse or reduction gears and turbochargers.

wherever heavy-duty internal combustion marine engine power is used. On the back page is a description of the principal engine components and many of the accessories furnished for marine operation. Accessories and some components may vary as required and specified for various types of work boat service.

All the *proven* features that result in long engine life and the ability to withstand overloads, that result in low maintenance costs and economical operation, are built into these Waukesha Marine Engines. Crankshafts are precision counterbalanced, rugged, and have large bearing surfaces; valve and camshaft mechanism materials, pressures, and capacities are carefully engineered; pistons, rings and rod pin assemblies are installed in matched sets; cooling and oiling systems are of ample capacity; governors are built-in and automatically lubricated; crankcases and structural elements are ribbed and flanged for extra strength; combustion chambers and manifolding are the result of constant research development; fuel and coolant lines and connections are arranged for easy installation; all parts are designed to be readily accessible for service and inspection.

From this complete line, you can select *exactly* the right Diesel engine to meet your requirements . . . normally aspirated or turbocharged . . . and each one is a quality product. Materials, design, and operating characteristics are the result of over fifty years' experience in building fine engines. For honest, reliable, profitable work boat power, you cannot buy a better marine engine.



WAUKESHA diesel marine power

Engine Model	Engine Type	No. Cyls.	Bore and Stroke	Displ. Cu. In.	MAXIMUM RATING 24-Hour Duty
Reliance	Normal	12	8½ x 8½	5788	665 horsepower @ 1200 rpm
	Turbo	12	8½ x 8½	5788	990 horsepower @ 1200 rpm
Defender	Normal	6	8½ x 8½	2894	335 horsepower @ 1200 rpm
	Turbo	6	8½ x 8½	2894	555 horsepower @ 1200 rpm
Wanderer	Normal	6	7 x 8¼	1905	240 horsepower @ 1200 rpm
	Turbo	6	7 x 8¼	1905	315 horsepower @ 1200 rpm
Resolute	Normal	6	6¼ x 6½	1197	195 horsepower @ 1600 rpm
	Turbo	6	6¼ x 6½	1197	290 horsepower @ 1600 rpm
Vigilant	Normal	6	5¼ x 6	779	150 horsepower @ 1800 rpm
	Turbo	6	5¼ x 6	779	195 horsepower @ 1800 rpm
Cutwater	Normal	6	4¼ x 5	426	100 horsepower @ 2000 rpm
	Turbo	6	4¼ x 5	426	120 horsepower @ 2000 rpm

COMPONENTS and ACCESSORIES

for [illegible] diesel marine engines

Engines—Waukesha heavy-duty marine Diesel type engines are furnished with components and accessories as indicated below. Designed for continuous operation. Sizes range from 426 to 5788 cu. in. displacement, and from 100 to 990 maximum horsepower for 24-hour duty. Each size is available in a turbo-supercharged or non-turbocharged (normal aspiration) version.

Crankcases—Waukesha special alloy cast iron. Heavy main bearing bridges and thick oil pan mounting flanges and end walls—designed for maximum rigidity.

Cylinder Heads—Valve-in-head high compression type on all models, mounting the clean-burning, controlled turbulence, patented spherical combustion chambers. Injection nozzles and combustion chambers removable from the outside.

Cylinders—Removable wet sleeves of Waukesha special heat-resistant alloy iron in all engines except the Cutwater (426 cu. in.). Cutwater models have dry sleeves.

Pistons—Heavy-duty aluminum alloy with wedge-type compression rings. Oil control rings are parallel-side type. Pistons ribbed for extra strength; carefully designed for even heat expansion.

Connecting Rods—Forged steel, rifle-drilled for pressure oiling to pin bearings. Large and small ends precision-machined on parallel centers to Waukesha Quality Control standards in Waukesha's shops. Pistons and pins assembled in matched sets.

Crankshafts—Forged steel shafts are machined and precision ground in Waukesha's shops to rigid Quality Control standards. All crankshafts counterbalanced, with large diameter journals, for smooth power flow from pistons through entire power train to shaft and propeller.

Main and Rod Bearings—Precision-type replaceable steel-backed bearing shells held by deep-section caps. Unusually large total bearing areas in all models.

Exhaust Manifolds—Water-cooled exhaust manifolds on all models.

Governors—Mounted on injection pumps and independently lubricated in all models, except the Defender (2894 cu. in.) and Reliance (5788 cu. in.) which use governors driven from the engine gear train.

Fuel Systems—Waukesha Marine Diesels are equipped with Bosch injection pumps, drawn steel injection lines and pintle-type injection nozzles. Combustion chamber assemblies are removable from the outside.

Lubricating Systems—Positive pressure gear-driven lubricating pumps and scavenger pumps in all models. Pressure relief valves. Oil filters and coolers are standard.

Cooling Systems—Centrifugal pump cooling, gear or V-belt driven according to engine model. Directed circulation, and coolant passage design of cases and heads eliminate local hot spots and promote even heat control. Expansion tanks for all models. Engines engineered for either heat exchanger or keel cooling.

Starting Systems—Electric starting systems with starting motors, generators and regulators, available for all models; or air starting equipment as specified.

Power Take-Off—Front end power take-off facilities available for driving hydraulic pumps, auxiliary generators or air compressors, raw water and bilge pumps, winches and other marine accessories.

Reverse and Reduction Gears—Reverse and reduction gears in size and ratios to match the complete line of Waukesha marine engines and the service requirements are available. Consult your nearest distributor or the Waukesha Motor Company.

Controls and Instruments—Oil pressure and water temperature gauges, starter switches, safety devices, instrument panels, and tachometer drives for all models. Visible and audible alarms or facilities therefor, as specified.

Other Accessories and Equipment are available for special services.

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NORTH ATLANTIC

Massachusetts Scallopers Must Have Approved Equipment

As of June 1 Massachusetts scallopers must have new equipment aboard their vessels which will comply with State Department of Public Health regulations. Wooden wash boxes and galvanized buckets must be replaced by stainless steel pails and metal wash boxes.

A metal wash box, made of an aluminum alloy and installed on Capt. Peder Eiesland's *Bright Star* was to be tested at sea last month. If it proves satisfactory, State approval of the metal box will be sought. A few different types of stainless steel wash boxes have been approved but none have been installed aboard vessels yet.

Trawler Chartered to Explore Sand Eel Fishery Possibilities

The chartered trawler *Metacomet* was scheduled to leave East Boston during the week of May 19 to start exploring for commercial concentrations of sand eels, off the New England coast.

The *Metacomet* was to use a fine mesh otter trawl of a design now used in the Holland and Denmark sand-eel commercial fisheries.

In 1957 more than 75 million pounds of sand eels were caught from April through July off the coasts of Holland and Denmark, and the fish meal and oil product of this fishery is said to be of unusually fine quality.

Since sand eels are known to exist off the coast of New England in substantial quantities, the exploratory and gear tests to be conducted should give further information on the commercial possibilities of this type of fishery in the New England area.

Boston Gets First Mackerel

The first two mackerel gill netters of the season arrived at Boston Fish Pier during the week of May 24 with 700 pounds of mackerel, which sold for 48 and 40 cents a pound.

The bulk of that week's landings were large and scrod haddock. Cod and pollock landings increased substantially over the previous week, and prices remained comparatively steady.

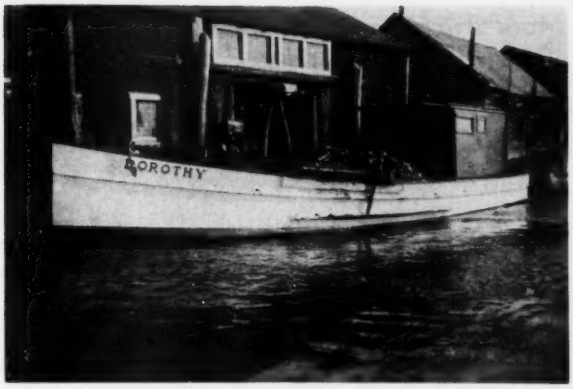
"Delaware" Has Successful Cruise

Over 11 tons of bluefin tuna were landed at two exploratory longline stations during a recent *Delaware* cruise to investigate the pelagic offshore resources of the western North Atlantic. Twelve exploratory stations were fished in a 76,000 square mile area of the North Atlantic, extending from south of the Grand Banks to the Gulf Stream track and westward to an area southeast of Georges Bank.

Tuna longline gear, of nylon construction, similar to that now being used commercially in the Gulf of Mexico, was used on all stations. The normal exploratory set was 60 baskets. On all sets frozen sea herring was used as bait. No gear was reported lost during the cruise.

"Albatross III" Reports Made at Woods Hole

The *Albatross III* returned to Woods Hole, Mass. on May 28 from a cruise to Georges Bank to study the vertical distribution of fish eggs and larvae. Larval haddock, cod and flounder were fairly abundant and in general appeared to be concentrated at the 10 meter level in water deeper than 60 fathoms and at the 20-30 meter level in water shallower than 60 fathoms.



"DOROTHY" 38' oyster dredger owned by Edgar Reas, Absecon, N. J., is powered with a 115 hp. Chrysler Crown engine turning a 20 x 16 Columbian propeller. She has Delco batteries, uses Esso fuel and lubricating oils, and is finished with Pettit paint.

Earlier in the month the *Albatross III* left Woods Hole for three days of underwater television research on the Cape Cod fishing grounds. The research was concerned with the possible use of TV in the future as a tool for estimating the sizes of populations of fish.

The TV camera was fastened in the codend of the net so that the behavior of the captured fish could be observed. In two of the experiments, a hole was left in the very end of the net so that the fish could escape. Surprisingly, none of the fish caught made any serious attempt to leave through this back door. The fish caught included dogfish, blackback and yellowtail flounders, cod, small haddock and herring. It was observed that the behavior of the fish was affected by the turbidity caused by the net itself, especially when the net was towed at slow speeds.

Bids in for New Gloucester Fish Lab

The biggest federal government building project in Gloucester, Mass. in many years was almost ready to begin early this month. As soon as Governor Furcolo signs a bill to authorize the State to lease to the Federal government a corner of the Fish Pier, the way will be cleared for further action.

The next action is expected to be the award of a contract for the building of a technological laboratory off Emerson Avenue, and a gear shed on the Fish Pier, for the Bureau of Commercial Fisheries of the Fish & Wildlife Service.

The bids were in by the 31st of May and several were well within the estimate of $300,000 for both buildings. An additional $194,000 has been provided for equipment.

The proposed laboratory building will be a one-story structure of limestone and brick veneer. Its laboratory will have floor space of 12,000 square feet, and the staff will carry on technological studies of handling, processing and preservation of fishery products; development of specifications and grade standards, and other research resulting from contact with the industry.

The gear building on the pier will be for storage of gear of the research vessel *Delaware*.

Boston Trawler Now Owned in Gloucester

The former Boston beam trawler *Bonnie Breaker* is now operating out of Gloucester, Mass. She is now owned by Joe Codinha, owner of the American Fillet Co., one of six ocean perch filleting firms in Gloucester.

Hi Trilling, Boston beam trawler owner, well known along the waterfront, whose vessels are known as the Bonnie fleet, sold the *Bonnie Breaker* to Codinha who has been a fillet plant operator for several years.

Capt. Manny Marques of Rockport is the skipper and late last month the vessel was in the Grand Banks area on a redfishing trip.

More Strict Gloucester Customs Inspection

Stricter enforcement of customs inspections went into effect last month in Gloucester, Mass. and all vessels, including fishing vessels, arriving in port direct from foreign ports are to be boarded by Customs and Immigration before any crew member is allowed ashore. No merchandise, crew's effects or cargo can be landed until the boarding provisions have been affected.

Gloucester Landings for May

During May landings at Gloucester, Mass., totaled 17,298,600 pounds of fish. On the 12th of the month a fleet of 16 vessels brought in 2,133,500 pounds; on the 19th a fleet of 19 landed 1,537,500 pounds; on the 22nd 14 vessels came in with 1,058,500 pounds; and on the 26th a fleet of 23 reported with 1,381,000 pounds.

The fleet of smaller vessels landed a total of 848,500 pounds, making the grand total for the month 18,147,100 pounds.

New Bedford Scallop Festival

The Exchange Club of New Bedford, Mass., with the cooperation of the New Bedford Seafood Council is promoting a New Bedford Scallop Festival August 8 and 9. The festival will spotlight an industry which last year saw 16,456,850 pounds of scallops brought into New Bedford with a valuation of nearly $8,000,000.

Marine Park on the New Bedford-Fairhaven bridge has been chosen as the site for the festival which will be highlighted with a parade, beauty pageant and scallop dinners.

Heavy Landings at New Bedford

Fifteen draggers and 10 scallopers unloaded the heaviest landings of fish and scallops at New Bedford, Mass. in seven months on May 17. The majority of the 424,900 pounds of fish brought in were haddock and lemon sole. The scallop landings amounted to 103,000 pounds.

Two unusual catches were brought up in the nets of the dragger *Miriam A.* One was a 50 to 60 pound tuna caught in the vicinity of Veatch Canyon, south of Nantucket and the other was only part of a fish believed to be a lancetfish or handsawfish.

Unable to Sell Catch at New Bedford

The Nova Scotia scalloper *Aegir* which came into New Bedford, Mass. on May 14 for repairs and with 9,500 pounds of scallops aboard left eight days later with her catch still aboard. Customs regulations would not permit her to sell despite frantic efforts by the skipper of the scalloper through the Canadian consul to the United States in Boston.

The catch was worth over $4,500 when the scalloper came in for forced repairs and the skipper tried every angle to get permission to land the scallops in New Bedford. An earlier plan to try to salvage the entire load by rushing to Yarmouth, Nova Scotia was abandoned as some of the scallops were too old to have any value.

"Aegir" Repowered

The *Aegir*, owned by Adams & Knickle, Ltd. of Lunenburg, N. S., was recently repowered with a Model LRDBM, 335 hp. Waukesha Diesel with 3:1 Snow-Nabstedt reduction gear. The engine was sold by Hathaway Machinery Co. and installed by Lunenburg Foundry & Engineering Co.

New Engine For "John G. Murley"

The New Bedford, Mass. dragger, *John G. Murley*, is being repowered with a 480 hp. turbo charged D 397 Caterpillar Diesel with Snow-Nabstedt 3:1 reduction gear. The boat is owned by Capt. John G. Murley, and the engine was sold by Perkins Machinery Co.

New Bedford Has New Fillet Plant

John C. DeMello of New Bedford, Mass., general manager of the Coastal Fisheries for 12 years, has opened his own fillet house, the Gem Fillet Company, in the former Wamsutta Fish Co. building space at the foot of Walnut Street. The fillet house will work for a year-round fresh fish market, to supply the daily demand in New York and Philadelphia outlets.

Employes now include five cutters, four skinners, two packers and a floor man. The payroll will include 25 when peak production is reached. The new company is the 16th fillet plant in operation in New Bedford at the present time.

Maine Lobstermen Found Guilty Of Violating Anti-Trust Laws

A federal jury on June 4 found Maine's organized lobster fishermen and their president guilty of price fixing in violation of government anti-trust laws. Sentencing was set for June 10.

Bail for Leslie Dyer, president of the association, was set at $1,000, but he was released on his own recognizance. A. Alan Grossman, Rockland attorney for Dyer, said the findings would be appealed.

The Maine Lobstermen's Association represents 2,600 of Maine's 6,000 licensed lobstermen and the association and its president were charged with conspiracy to fix a minimum price for lobsters by urging lobstermen to tie up their boats last summer in an effort to boost dealer prices to 35 cents a pound. The price had dropped to 30 and 32 cents.

Maine Sardines Beneficial to Health

Sardines have been found to contain many minerals and vitamins essential to good health and they have also been found an excellent source of elements that help to stave off circulatory and heart diseases, according to Dr. Frederick J. Stare.

Dr. Stare, head of the Harvard School of Public Health and a leading authority in the field of food research and chemistry has been studying Maine sardines. His studies have been made possible through funds from the Maine Sardine Council.

Mayor from Iceland Visits Rockland

Mayor Stefan Gunnlaugsson of Hafnarfjodur, Iceland, a fishing port of 6500, spent some time in Rockland, Me., last month visiting the 40 Fathom Fisheries plant and meeting several people connected with the fishing industry.

He was particularly interested in the fishing industry for his municipality owns and operates three 200-ft. 600-ton steel trawlers and a filleting plant. The trawlers, built in England, have almost twice the fish hold capacity of the fleet operated out of Rockland by 40 Fathom. His port also has five big trawlers and about 20 smaller craft.

The product at 40 Fathom-ocean perch-was familiar to him as his port processes them also. However, the major fish handled are cod and haddock.

Loses First Herring Catch of Season

Hugo Lehtinen, one of Tenant's Harbor's first line sardine fishermen, "shut off" Tenant's Harbor, Me., last month, but lost 1,000 bushels of herring, his first catch of the season.

Henry Jones and Charles Prye had each shut off a cove in the area and had an unestimated number of fish but were holding up awaiting some arrangement in prices.

Lehtinen said that when they pulled up the twine from the pocket where the sardines escape, they found several large holes. They believe the pocket may have

"John G. Murley," out of New Bedford Repowered with Cat D397 Marine Engine

Pictured, John G. Murley, Jr. signing an order for their *third* Caterpillar* Marine Engine, while Captain John G. Murley, Sr. looks on approvingly.

Because of the DEPENDABILITY they found in Caterpillar Marine Engines, these satisfied owners recently purchased their THIRD. They know they have a modern heavy-duty engine for continuous hard work at full power. Plus:

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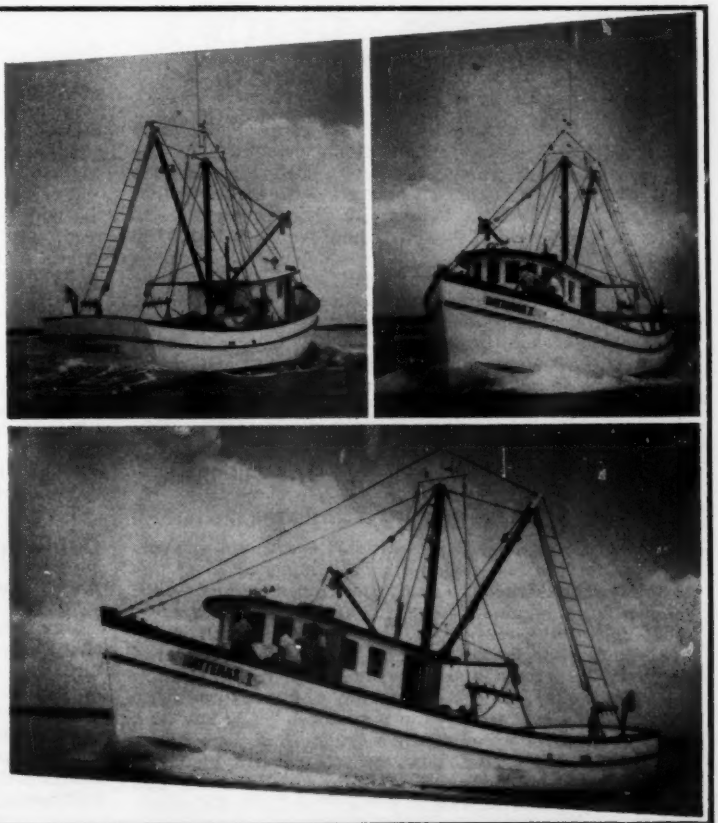

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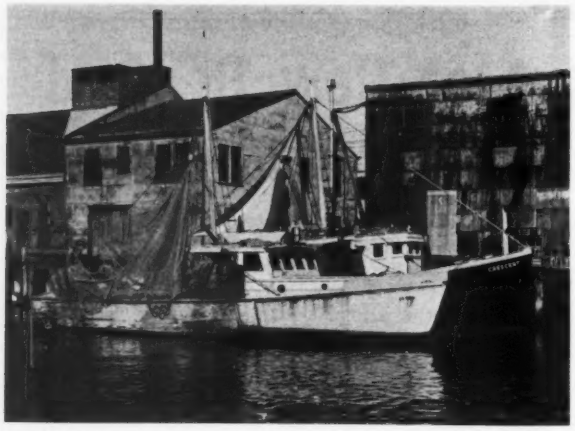

PORTLAND, ME. WHITING DRAGGERS. Outside: the 45-ft. "Challenger" with 4-71 General Motors Diesel, owned by Norman H. Olson. Inside: the 50-ft. "Crescent" with 6-71 General Motors engine, owned by Capt. Norman Olson. Linen Thread Gold Medal nets are used on both boats.

caught on the bottom of an old lobster trap which would have allowed the fish to escape underneath.

Lehtinen said he planned to fly in his fish spotting plane to see if any more schools of herring were in the area.

New Fish Plant Operating at Portland

George I. Lewis, owner of Mid Central Fish Co. who has recently renovated the plant on Custom House Wharf, Portland, Me., reported that the plant was ready to begin the freezing of fish.

Whiting and redfish are prepared whole and fillets are made from these fish for shipment out of Maine. The largest market for this type of fish is in the Midwest.

New Hampshire Clammers Ask Reopening of Clam Flats

Harry G. Fowler, spokesman for a group of clammers at Seabrook, N. H. charges that home owners along the shores of Great Bay have pressured politically to keep the area closed to commercial digging. He believes that there are enough clams to keep 40 diggers working six months of the year and that their haul would net $100,000 at retail prices.

As it stands now, the entire salt water area of New Hampshire is closed to commercial clamming, and the once thriving industry is at a standstill.

C. Floyd Jackson, professor emeritus of zoology, University of New Hampshire, claims that the objections of land owners do not enter the picture. The law has established that the area between high and low water is the property of the state. He says that the bay area was closed because of water pollution and other areas were closed because the clam population was dying out.

New York Fluke Tagging Program

The New York State Conservation Department at Freeport, has for the last few years been engaged in an intensive study of fluke. The study was continued last month when a fluke tagging program was to get under way. About 3,000 fluke will be tagged this year which is the same number tagged last year. Of the 1956 tags recovered last year, 25 percent of them came from fish caught in Great South Bay, others came from Connecticut, Rhode Island and Massachusetts. One tagged fish off Shinnecock on May 14, 1957 was caught by a dragger off York River, Va. just 10 days later. Most sensational traveler was another tagged off Shinnecock on May 8, 1957 which was picked up by a shrimp trawler on October 10 in Galveston Bay, Texas.

Hudson River Shad Fishing

Hudson River shad fishing got off to a slow start this season. Catches on the upper Hudson from the Tappan Zee Bridge at Nyack, N. Y., did not begin until the third week in April. The lift period was changed this season to Thursday 6 P.M. each week until 6 A.M. Sunday which may account for fewer nets operating on the river.

A great many fishermen are just casual fishermen, who fish after work and weekends and considerable discussion was evident to change the lift period for the balance of the season so the casual fishermen or part-time operators could fish weekends.

Funds Being Sought for South Bay Survey and Seed Clam Planting

The Islip, N. Y., Town Board was asked to authorize a $3,000 appropriation last month for the planting of seed clams and oysters in Great South Bay and to permit the Woods Hole Oceanographic Institute to make another survey of local waters.

The request was made by Nicholas Griek of West Sayville, executive secretary of the Long Island Fishermen's Assoc.

Two thirds of the $3,000 would be used to carry out the annual planting of seed clams, and for oyster seeding as an aid to the revived oyster industry. One thousand dollars would go toward the Woods Hole study.

New York Scallop Landings Increase

Vessel landings at Fulton Market during the month of April were 2,012,300 lbs. of fish, 11 vessels making 31 trips. Leading species were scup, butterfish, whiting and seabass.

Scallop landings were considerably higher this April than last with 9 vessels making 18 trips and landing 183,000 pounds. Scallop landings at Greenport and other Long Island ports were estimated at 21,600 lbs.

Greenport Oyster Plant Damaged by Fire

The plant of the Greenport Oyster Co., Greenport, N. Y., was damaged by fire last month. The fire was confined to the roof and in the large storage room on the third floor, but there was considerable water and smoke damage done to the offices directly below the burned section.

It is believed the fire was started by a short circuit in the wiring. No estimate of the damage was available immediately, but no let down in the work at the plant was caused by the fire.

Herring Fishing Good at Islip

Fishermen from Islip, N. Y. reported good catches of herring in April. The latter part of the month they had as many as 10,000 pounds in one lift of the trap. Mixed with the herring were a few shad both bucks and roe.

Pound net fishing in Raritan Bay was a little behind that of last April, due mainly to the cold weather. However, the Raritan Bay pounds faired a little better than those on the Jersey side with the first shad catch.

Delaware Shad Fishermen Await Increased Catches

May is traditionally the period during which the height of the run of shad up the Delaware Bay and River from the ocean occurs.

Fishing was fairly good early in May in spite of the rain and cold weather. Crews fishing from Delaware City and Port Penn were taking from 10 to 30 fish a drift but were hopeful of increasing their catches with more favorable weather. The fish were running about half roe and half bucks. Most have been small with but very few large

(Continued on bottom of opposite page)

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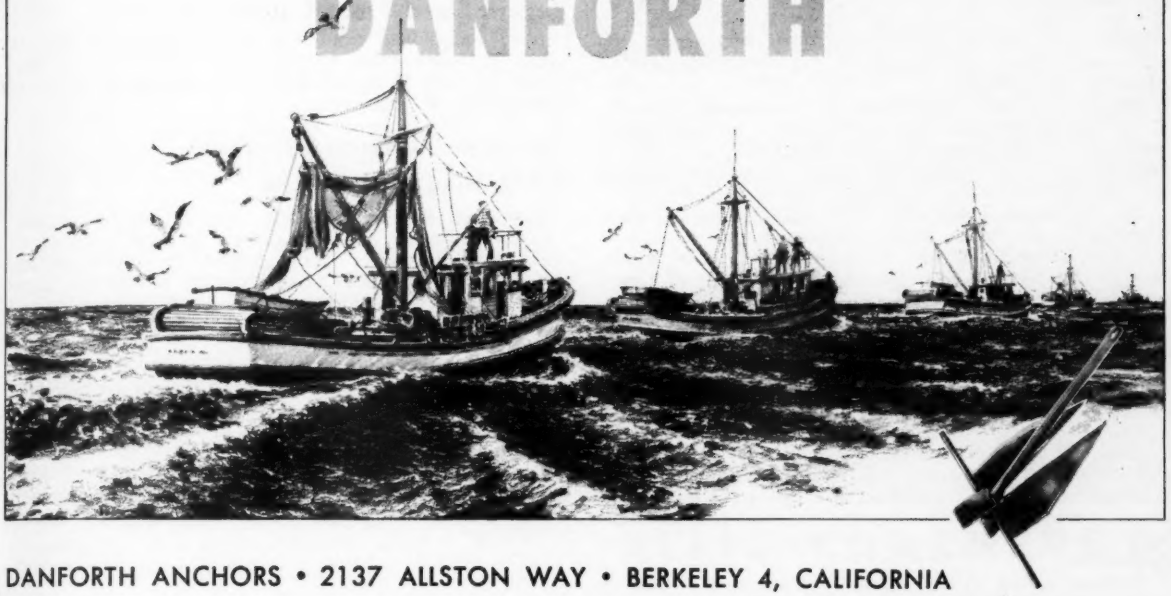

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roe shad taken. The majority were running from three and a half to four and a half pounds, with an occasional roe weighing five pounds or a little more.

Several crews from Port Penn have been fishing regularly and have been making good catches which they have sold locally or put away in freezers.

Fishermen are complaining that the river is alive with carp which most fishermen consider a nuisance fish. The carp has a small market value and some fishermen catch them to use as fertilizer in gardens. They chop them up and they spade the pieces into the ground.

New Jersey to Have New Fish Processing Plant

A new firm known as Gordon's Fisheries is expected to start operating in Wildwood next month which will employ 100 workers when in full operation and give the area an additional $600,000 annual payroll.

The plant, operated by Jack Gordon of Sea Isle City and Nate Bekoff of Gloucester, Mass., will package frozen fish, crab meat and scallops in air-tight packages ready for cooking and serving.

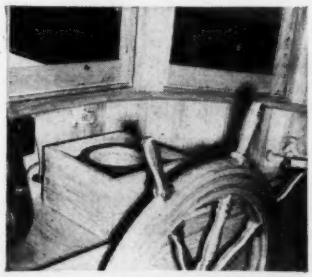
A commercial fishing broker, Gordon bought the property last December. Bekoff has been in the wholesale fishery and packaging business for 25 years.

Stonington Dragger Swordfishing

The Stonington, Conn. fishing dragger *Luann*, Capt. George Roderick left June 1 for its annual swordfishing cruise. Joining with the crew of the *Luann* were members of the crew of the dragger *Fairweather*, Capt. Bill Roderick. The trip will take the *Luann* as far as Nova Scotia and the Grand Banks. The dragger was newly painted and overhauled for the trip.

A RITCHIE COMPASS

Guides The New "CARIBBEAN SEA"



Caribbean Sea, built by Diesel Engine Sales, Inc., St. Augustine Fla. for Sahlman Seafoods, Inc., Tampa, Fla.

Since 1850, Ritchie Compasses have faithfully guided commercial craft of many types and sizes. The new shrimper *Caribbean Sea*, the seven hundredth boat built by Diesel Engine Sales, Inc. is one of the many constructed by these well known builders to be equipped with compasses by Ritchie.

There is an ideal, dependable Ritchie Compass for your boat, regardless of her size, type, or the waters she works. *WRITE US YOUR REQUIREMENTS AND FOR OUR CATALOG, SO YOU WILL HAVE IT ON HAND. And ask your marine dealer about Ritchie Compasses.*

E.S. RITCHIE & SONS, Inc.

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"Guiding Fully-Found Craft Since 1850"

GREAT LAKES

New Chemical Effective Against Sea Lamprey

A powerful new chemical called Lamprecid killed all the sea lampreys in Upper Michigan's Mosquito River in slightly more than six hours, one fourth of the expected time, according to Dr. Vernon C. Applegate, who developed the chemical.

The new yellow chemical was poured into the river by U. S. Fish & Wildlife Service personnel. Original plans were to treat the stream for 24 hours, but Dr. Applegate said the treatment was stopped after slightly more than six hours because all the lampreys were dead.

Dr. Applegate said further tests of the chemical were planned for the Silver, Rock and Chocolay rivers. It was hoped to treat all streams in the Lake Superior watershed in the next 18 months and the entire Great Lakes area in the next five years.

William F. Carbine, regional director of the Federal Bureau of Commercial Fisheries, said that Canada planned to put 500,000 yearling trout into Lake Superior this year and that federal and state agencies would add some 300,000 more.

Rainbow trout in the stream which was treated became restless, but only one casualty was observed and this a fish weakened by earlier sea lamprey attack. Several rainbow actually took anglers' lures during the treatment. Aquatic worms were killed by the chemical but the damage to insect larvae and other forms of stream life was negligible.

Further testing will be carried out during the summer on larger streams where application will be more difficult. Should these tests continue to prove successful the chemical technique will assume an important role in the early control of the sea lamprey which has destroyed lake trout in Lakes Michigan and Huron and is now rapidly reducing stocks of trout in Lake Superior.

THE 25' STEEL SMELTER "GO-GO" designed by Francis L. Wenniger, Algoma, Wisc. She is equipped with 25 hp. Evinrude outboard motor with extended shaft. She is capable of handling 10,000 pounds per load.

New York Lakes Standard Confusing

The different standards which apply to fish taken from Lakes Ontario and Erie by New York State licensed commercial fishermen, and fish caught out of New York State fishing jurisdiction causes confusion.

It is believed that Canadian fishermen will conform to rules governing minimum size requirements if all whitefish are not less than 1 1/2 pounds dressed or not less than 1 1/3 pounds in the round.

Record Sized Trout Caught

A 40-pound lake trout, the largest caught in some 15 years by commercial fishermen on Lake Superior, was taken on May 13 by Max Beidle and George Jones of Cornucopia, Wisconsin.

Canadian Fishermen Protest Oil Drilling in Lake Erie

The West Erie Fishermen's Association has written Canada's Premier Frost to protest alleged pollution of water and invasion of fishing grounds by drillers seeking natural gas under Lake Erie. A similar protest was made two years ago and the association said they were assured by former Lands and Forests Minister Clare E. Mapledoram some action would be taken.

Association president Murray McLean said, "Not only are we concerned over pollution, but there's the possibility some driller may make a strike which is difficult to handle and which could get out of control.

"I've seen the lake when no one could get out for a week. In stormy weather it wouldn't be too easy to carry on capping operations in open water. A flowing gas well belching forth for a week would have disastrous results to fishing."

Deep Sea Trawling

(Continued from page 9)

speed trials and found to be 15 shp. at three knots, 25 shp. at four knots, and 40 shp. at five knots in a flat calm. Allowing for reduced efficiency, slight seas and change of trim, the power required to drive the ship alone at four knots, would not be more than 40 shp. As far as can be deduced from readings taken, extra torque required to trawl into a force 8 wind would result in an increase in power of less than 100 shp.

Other readings were taken during normal voyages in two commercial trawlers of about 180 feet bp. One trip was made in each vessel, primarily for the study of fish spoilage, and readings of trawling powers and speeds were taken when convenient. Readings were taken on a trip to Iceland and Faeroe in the first of the two commercial vessels, a Diesel-electric trawler of 190 feet bp. The propulsion system had a variable-torque characteristic. The level of power developed was not very different from that of the small ship in shallow water. A power of 560 shp. was observed when towing into a force 7 wind.

The other boat was a steam trawler of 181 feet bp with triple expansion engines and an exhaust turbine. Power was measured by a torsion meter and ship's speed both by SAL log and by timing the passage of a floating object.

Again the general level of powers developed was similar to that in the *Sir William Hardy*. The torque varied from one reading to the next since the normal engine setting when towing was well below the maximum torque, and settings were varied to give constant rpm as near as possible.

The final two tests with the commercial trawlers were an experiment in which maximum torque was applied. It is interesting to note that nearly normal maximum power, 1,300 shp., could be developed. In spite of a threefold increase in power, the speed of trawling rose by

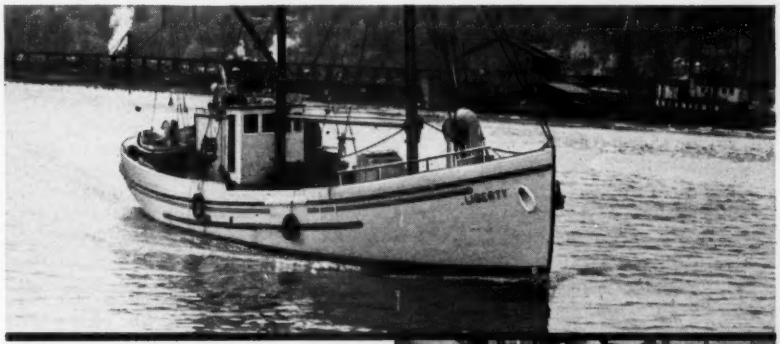
"We liked the performance of Allis-Chalmers diesels in other boats..."

...That is the way Captain Olaf Matheson commented on the choice of an Allis-Chalmers marine diesel to re-power the 72.4-ft schooner, "Liberty," owned by George Kristiansen, Seattle.

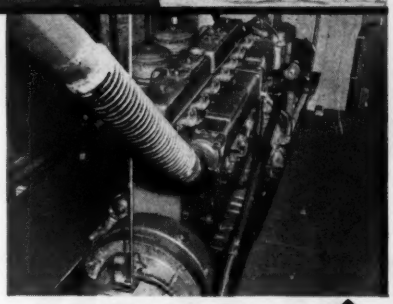
For profitable tuna and halibut fishing in Alaskan waters, a boat and its engine must work during the May to December season. Capt. Matheson capitalizes on the *Do-More Power* of the "Liberty's" new engine to get an easy 10.7 knot speed to the fishing grounds and back with 60 to 70-thousand-pound catches.

He makes the most of the limited season with less time taken in port, too. Simplicity of the Allis-Chalmers engine, with fewer parts, means less need for frequent service and adjustments. It also means reliable day-in, day-out performance and more actual days fishing.

When you plan propulsion power for your new boat... or modernized power for your present craft... or marine generating sets... call your Allis-Chalmers marine engine dealer. He can give you all the facts — and show you the experience of other users. Allis-Chalmers Engine - Material Handling Division, Milwaukee 1, Wisconsin.



The "Liberty," a 72.4-ft schooner fishing boat out of Seattle, is now driven by an Allis-Chalmers 285-hp 8DAMR-1125 marine diesel turning a 3-blade 54 x 44 propeller through a 4½ to 1 reduction gear.



ALLIS-CHALMERS

BM-25

only 20 percent in relation to comparable runs at normal settings. Judging by the other observations from the three boats, the increase in power absorption can be attributed to the propeller working at a low point of efficiency rather than to a sudden sharp increase in the drag of the gear, but it is not conclusive.

The results of these tests would explain the opinions that 800 to 1200 hp. is developed by a big trawler when fishing. It had been assumed that the figures were rational deductions from the propeller rpm. known to be employed when trawling, on the assumption that maximum torque was used. In some cases it may be that high torques are used.

Importance of Suitable Propeller

If some trawlers do have to develop 800 to 1200 shp. to trawl effectively it indicates either great variations in the quality of propeller design or in the rigging of the trawls. The experiments show that a vessel with a propeller of high enough efficiency in the trawling condition to allow powers being kept as low as 400 hp. can be operated so ineffeciently that the power absorption rises to 1250 hp.

Since there is more than adequate torque for fishing available on a big trawler, the choice of engine settings is to a large extent at the mercy of arbitrary decisions. Years ago the largest trawlers were steam vessels with a power of 600 shp. maximum. Such vessels had to develop maximum torque in order to produce the thrust required to trawl at acceptable speeds. The rpm. were then about two thirds or three quarters of the maximum rpm. when running free. As the ships have increased in size and power, the skippers have continued to trawl at the same rpm., and by many skippers the rpm. is still regarded as a direct measure of power.

It is possible that a slight improvement in efficiency in either the free running condition or the trawling condition, or both, might be achieved if the designer of the

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Now...reach those distant stations...with miles to spare! AE-75M...a powerful 90 watt transmitter combined with a receiver having extra high sensitivity for weak signal reception...new modern circuitry and features throughout.

AE-75 is unusually compact yet gives you the high power extra channels and wide frequency coverage necessary for long range cruising.

AUDALOK too! This feature protects receiver against overload and distortion from strong nearby stations... gives full gain on weak signals. Positive-action noise limiter reduces annoying static bursts, insures better, quieter reception.

Small size makes mounting easy. Drawer-type construction provides accessibility, simplifies installation, adjustment. AE-75M is ruggedized, protected against moisture, fungus. Dependable!

HIGHLIGHTS:

- 90 watts input power.....
- 7-crystal controlled channels within 2000-6000 kc range
- AUDALOK, exclusive automatic volume control.....
- Positive noise limiter.....
- AE-TANDEM NETWORK...
- Full-vision, front panel metering.....
- Addition of FCR-2 Remote Control System permits full control from flying bridge or other remote position...
- F.C.C. Type Accepted.....

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propeller were allowed a free choice of rpm. for trawling. Ships speed and the thrust required to pull the trawl at that speed would have to be known.

Given favorable conditions, sufficient torque and a suitable propeller, it seems quite easy to pull a trawl at much higher speeds than usually achieved by large commercial distant-water trawlers. It has been suggested that by towing too fast, the configuration of the gear is upset or that the gear is lifted off the sea bed.

The choice of the most suitable maximum speed for a distant-water trawler should depend on the method of preservation of the fish and the distance to the grounds. In order to gain the maximum economic advantage from the adoption of a freezing plant aboard, it may be necessary to design ships with machinery little more than sufficient to deliver the power required for trawling.

Conclusions drawn from the tests indicate that a deep sea trawler towing a trawl of conventional design and with a suitably designed propeller needs to be able to develop 500 shp. or 600 shp. at most. Given constant power characteristics, a total power of 600 shp. would be ample. Given constant torque characteristics 750 or 800 shp. maximum when running free might be required. Any power installed in excess of this figure should be economically justified by the extra speed it produces in service.

Fiberglas Research Boat

(Continued from page 11)

one boat. Had they built a mold, either male or female, it would probably have cost as much as a conventional wood hull.

The construction of the 42 foot auxiliary ketch, *Arpege* was the novel solution to that and other problems, posed by a large plastic hull. The result of their efforts was a composite hull, an inner layer of laminated mahogany and an outer layer of glass reinforced plastic permanently bonded together.

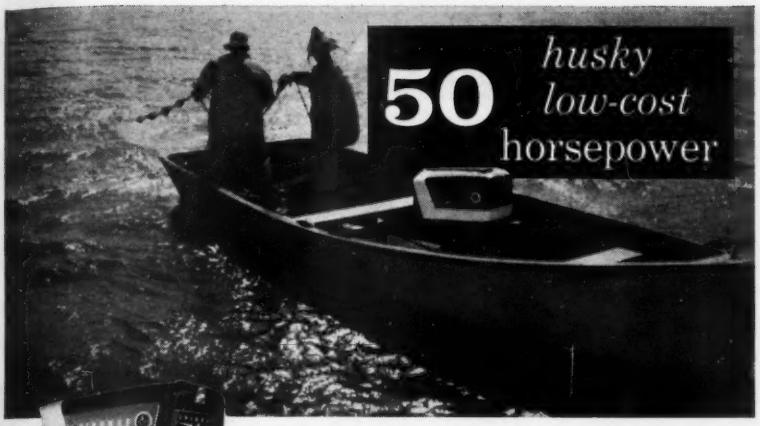
African mahogany veneer, four plys each ⅛" thick, forms the inner wooden shell. The bond between the veneers was made using phenolic resorcinol, with one layer of open weave glass cloth between the first and second layer. Staples were used to hold the veneer and create bond contact. The glass reinforcement is HG 65 cloth, ⅜" thick at the shear line and increasing to ¾" toward the keel. Bulkheads and floors are of sandwich construction utilizing mahogany edges around phenolic honeycomb core and faced with glass reinforced plastic.

After the hull was designed, the lines were lofted in accordance with regular ship building practice. Stations were built, raised and set in proper position and relationship to each other. Ribbands of one by one stock of "junk" lumber (willow and poplar) were nailed fore and aft on about 10 inch centers. Since the stations and ribbands were not a permanent part of the structure and were to be used only once they could have been made of most anything, even packing box lumber.

The stem and keel was a laminate of wood put together with Borden's Cascophen glue and formed the backbone of the boat and was the toughest structural member in the boat of wood. The stem and hull was completely buried as building of the Fiberglas laminate progressed. After the ribbands were in place they were covered with a stapled-on vinyl film, which served to prevent glue line materials and resins from sticking to the stations and ribbands, all of which were to come out after the boat was finished.

When the skeleton was completed, the laying up of planking was begun to complete the form or the mold of the boat over which Fiberglas was to be laid. The planking was ⅛" mahogany veneer four inches wide. It was stapled down to the fore and aft ribbands with copper staples. To the first lay of veneer was laid a second, diagonally and glued with Cascophen and stapled. This planking formed a firm, true base directly on top of which a laminate of Fiberglas fabric was adhered.

Mahogany veneer was chosen for the form so that when



Here's the one for rigs that need *real* power . . . Evinrude's great "Four-Fifty." New, compact V-4 design. 70.7 cu. in. displacement. Delivers 50 solid b.h.p. at 4000 revolutions—easily, smoothly, quietly—in toughest day-in, day-out service. See your Evinrude dealer—he's listed in the yellow pages under "Outboard Motors." Complete range of models to choose from. Evinrude Motors, 4320 N. 27th Street, Milwaukee 16, Wis. *A Division of Outboard Marine Corporation. In Canada: Mfd. by Evinrude Motors, Peterborough.*

EVINRUDE

quiet outboard motors

the boat was finished and all stations and ribbands were removed it would have a beautiful mahogany interior which was in reality the inside or backside of the mold. The mold became an integral part of the boat as was the Fiberglas laminate on the exterior.

Some 1,500 yards of Fiberglas fabric went into the construction of the *Arpege*. Material was laid full length and thirty eight inches wide fore and aft. It could have been laid athwartships. All joints were butted and each successive layer of glass fabric was laid with staggered joints to continue the strength continuity of the glass and minimize the need for surface sanding to maintain a smooth plane. There are eighteen laminates in the sides and at the keel there are twenty eight layers.

The entire outside is resin reinforced with Fiberglas, with no exposed wood. It is in truth a molded Fiberglas boat; as much so as if it had been turned out in a mold. The las layers of glass in the lamination had color added to the resin so that when finished the paint job was done. The color was molded into the boat to become an integral part thereof.

At this point the boat was turned keel down and all stations, ribbands, and vinyl film were removed, leaving a huge empty hull with Fiberglas and resins as the exterior and mahogany as the interior. The auxiliary engine bed of wood was set in place and secured with epoxy resin, which is one of the most powerful adhesives developed in recent years. Bulkheads were built on a bench and secured in place with epoxy resin through a gasket of folded over Fiberglas fabric which made up for small irregularities of surface relationship between hull and bulkhead. All bulkheads were taped fore and aft with Fiberglas tape and resin for greatest strength. The keel was a deep hollow well which was filled with concrete and boiler plate punchings, reinforced with steel bars, furnishing an aggregate for added weight.

And so, the *Arpege* was finished and launched at Luna-Cournand Inc., Harve de Grace, Md. After fitting out in Baltimore and New York she sailed for Fort Lauderdale, Fla. to await her sailing date for an extensive oceanographic voyage in the Pacific.

The concept of construction employed in the *Arpege* lends itself to any craft irrespective of size, form, or duty. A retired old bucket, no longer a boat but still possessing the form of what was a boat, may be used, as the form of the *Arpege* was used, to build a new shell. The old wood may be left in place or removed in part or all. Any boat, including fishing vessels, may be borrowed for the utilization of their lines and new shells taken off in reinforced plastics.

Only the S-N gives you all eight

- Engineered for the modern high speed, heavy duty diesels
- Transmits full power and speed in forward or reverse
- No power loss due to dragging discs
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- Low cost per horsepower

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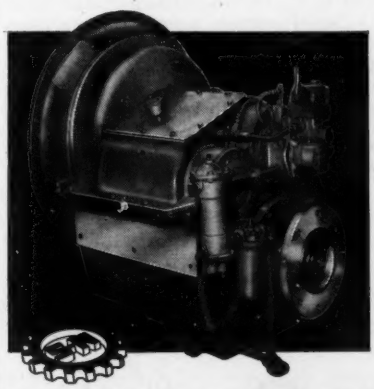
REVERSE-REDUCTION GEARS



SNOW-NABSTEDT

Transmission Engineers

FOR OVER HALF A CENTURY

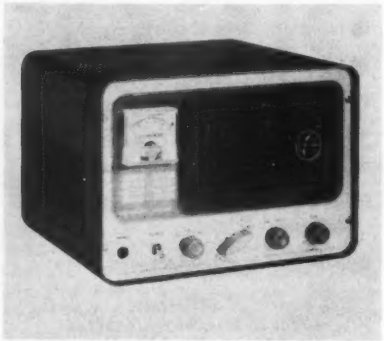
EQUIPMENT and SUPPLY NEWS

Apelco Announces Compact Radiotelephone

Applied Electronics Co., Inc., South San Fransisco, Cal., has announced the AE-75M, an unusually compact radio telephone with all features for long-distance communications-high transmitter power, sensitive receiver and wide frequency coverage. The seven crystal-controlled channels provided may be pre-set anywhere within the 2000 to 6000 kilocycles freqency range. This, together with 90 watts, power input enables contact with Coast Guard, ship-to-shore telephones and other boats even when cruising widely separated areas.

Circuit design and control features used throughout are planned for simple, non-technical ease of operation. The unit has provisions for use with Apelco FCR-2 Control System which can provide remote operation and complete control from flying bridge or other desired location.

The AE-75M introduces a volume control system called "Audalok" to automatically prevent very strong signals from over loading the receiver and to open up again for weak signal reception. Other features include positive action noise limiter, and Apelco's AE-Tandem network designed to permit maximum utilization of transmitter power. The entire unit is treated against moisture, fungus and corrosion. Equipment is F. C. C. type approved.



Apelco AE-75M radiotelephone introduces 'Audalok", new volume control system to prevent strong signals overloading receiver.

Oil Filter System Changes Made For Two Caterpillar Engines

The advantages of full-flow oil filtration have been added to the marine arrangements of two Caterpillar Series D Diesel engines, according to a recent announcement by Caterpillar Tractor Company, Peoria, Ill. The Caterpillar D375 and D397 marine engines are now being supplied with three and four pleated, impregnated elements respectively, which will give complete filtration to the total volume of lubricating oil in the engines. This engine-mounted filtering system replaces the by-pass method formerly used.

The Caterpillar full-flow lube oil filter system is designed to offer thorough protection to precision machined, internal engine parts. The increased filter capacity of the system and the improved efficiency of the Caterpillar paper elements, which trap even the smallest dirt particles, permit extended oil filter change periods. For engines presently operating, oil filter changeover groups are available for field installation.

New Michigan Wheel Inboard Catalog

The Michigan Wheel Co., Grand Rapids, Mich., has issued their new Inboard Catalog, No. 158, for anyone using or dealing in inboard propellers of the commercial type within the 72" diameter range. The catalog, in addition to descriptions of the various wheel types and metals in which they are available, contains complete technical data. Also, for the first time, it announces and lists a complete line of stainless steel propellers in sizes 35" through 72".

Prices for all wheels from 60" through 72" which represents the line expansion during the last two years, are now published. Ni-Bral, the new International Nickel metal and its availability in Michigan propellers is discussed in relation to the important advantages of the metal for high speed installations and for jobs where a very high tensile strength propeller is desirable.

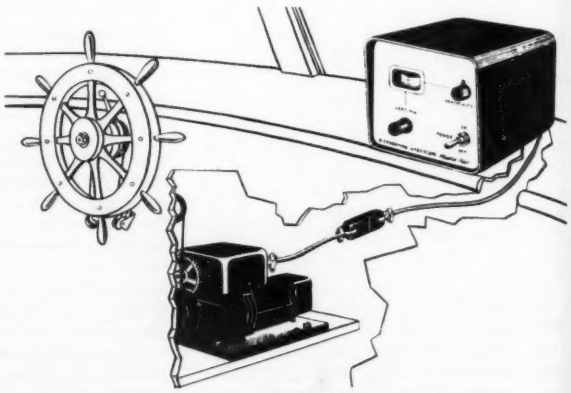
DECCA RADAR, INC., of New York City has appointed D. K. Dickenson as manager of the Marine Department. He has been with the Decca Companies for 11 years, most recently serving as sales manager of Decca Company in Norway. As an executive officer in British Royal Navy during World War II, Dickenson was navigational specialist and commanded small craft.

La Marche Handling Richardson Pilot

Distribution of the completely new, non-hunting Richardson automatic pilot is being handled by La Marche Sales Co., 49 Woodruff Ave., Wakefield, R. I. The Master-Pilot uses no operating contact, relays or tubes and thus eliminates the problem of contact cleaning and adjustment. A higher sensitivity to course change, up to ¼ of a degree, is claimed.

Another feature of the patented circuits of the Master-Pilot is proportional steering wherein the rudder angle varies in direct proportion to the number of degrees the boat is off course. The boat is eased back on to course with a touch more deft than a human pilot. Proportional steering is claimed by the manufacturer to be the reason that the Master-Pilot can hold a boat to a straighter course than a human pilot in quartering or following sea conditions.

The Master-Pilot offers either a magnetic or gyroscope heading selector. The latter is a little more expensive but able to hold closer to the set course and is highly desirable on steel hulled boats where there are large distortions of the earth's magnetic field.



Richardson Master-Pilot with Gyroscopic heading selector.

Hubbs Engine Co. Has Enlarged Sales and Service Facilities

Hubbs Engine Company now is located in new and enlarged quarters at 1168 Commonwealth Avenue, Boston 34, Allston, Mass. Over 15,000 square feet of space is provided for their one-floor operation, with ample facilities for equipment display, parts and service departments, and offices.

Hubbs is exclusive marine and industrial distributor for Detroit Diesel Engine Division of General Motors Corp. in Massachusetts, Rhode Island, Maine and Southern New Hampshire; and Massachusetts and Maine Distributor for the Marine & Industrial Engine Division of Chrysler Corp. The firm also distributes Marmac Controls, Maxim Silencers, Jabsco Pumps, C-O-Two fire equipment and Bacharach engine tools.

American Marc Inc., Inglewood, Calif. has just appointed Hubbs Engine Co. as New England distributor for its Diesel line. American Marc manufactures power units, generators and marine propulsion engines, including 6.5 and 13 hp. air cooled Diesels, 15 hp. water cooled Diesels and 5 to 7.5 kw. Diesel generator units.

A large parts department is maintained by Hubbs, staffed with a personnel of five men, headed by K. F. Service, parts manager. A full stock of parts is carried for all of its lines.

Shop space at the Hubbs establishment utilizes a 10,000 square-feet area, equipped with every modern facility for fast overhaul. A special feature is a Dynamometer for giving complete engine tests under top power and load up to 500 horsepower. There is an air conditioned, fuel injector service and overhaul room; and equipment for testing generator sets up to 80 kw.

The shop has overhead trolleys and hoists, and fork lift trucks for material handling. A hydro-lift truck is operated for picking up and delivering engines in the field, and a parts and service truck is constantly on the road. The shop force numbers 25, with William Lochrie, Jr. as shop foreman, and W. J. Lemieux as service manager.

R. W. Hubbs is president, treasurer and general manager of Hubbs Engine Co.; H. V. Gustafson is assistant to the president, and R. P. Bolster is sales engineer. A branch plant is maintained by Hubbs at 141 Main St., South Portland, Maine, of which C. R. McDonald is manager.

Linen Thread Making Netting in Alabama

The Linen Thread Co., Inc., 418 Grand Street, Patterson, N. J., is in the process of completing the transfer of certain netting operations from their plants at Chicago, Ill., and Baltimore, Md., to Blue Mountain, Ala.

The Blue Mountain Mill has been the source of raw material in the form of twines to both Chicago and Baltimore factories. The transfer of the netting operations to the South means greater efficiency and economy.

Upon completion of the move, R. C. Moyer will assume the position of general manager of all operations at Blue Mountain. Ralph N. Mallard will become manager of the Thread and Twine Division, with Carroll Huber transfering from Baltimore as manager of the Netting Division.

Bendix Has Direction Finder Manual

Five hundred copies of the 26-page manual "How to Use Your Radio Direction Finder", recently produced by Bendix Marine, North Hollywood, Cal., have been supplied to the U. S. Coast Guard for use as a training guide in the Coast Guard Auxiliary.

Contents of the Radio Direction Finder Manual includes the principles of operation of all basic types of RDF units, the interpretation of obtained bearings and how to plot them on charts, information on the use of airways and broadcast stations for bearings, comments on the accuracies of bearings from stations in various frequency bands, cautions on the reliability of bearings.

Display room of Hubbs Engine Co., Boston, Mass., showing General Motors and Chrysler engines which the firm distributes.

A portion of the Hubbs Engine Co. service department which has complete facilities for engine testing and overhauling.

Danforth at Patent Office Exhibition

Danforth Anchors, Berkeley, Cal. recently became the first anchor company to be invited to participate in a United States Patent Office exhibition. Held in the Department of Commerce building in Washington D. C. from May 12 through June 6, the exhibition was built around the theme of "Science, Industry, Invention and the U. S. Patent System".

Presidents of most of the 16 firms participating attended as well as many officials, Senators and Representatives. Robert Ogg, president of Danforth Anchors, gave an address at the opening ceremonies.

A history of anchors was presented in the Danforth exhibit, tracing the development of anchoring devices from the first rock with a vine tied around it, down to the very latest cast aluminum Danforth anchor, used on the Navy's most modern jet seaplanes.

Seger International Paint Representative

International Paint Co., Inc., 21 West Street, New York, N. Y., has announced the appointment of W. R. Seger as sales representative in the states of New York and Pennsylvania. Seger has been associated with the Oxford Boatyard and the Andrew Brown Co.

Exide Expands Battery Service

Exide Industrial Division of the Electric Storage Battery Co., Philadelphia, Pa., has announced a planned expansion of its system of regional service stations and warehouses, as part of an overall program to provide customers with improved service on industrial battery products.

Conversion of former manufacturing depots in Boston and Detroit for use as industrial battery service stations was the first move in the program. Plans call for the addition of service station facilities in other key cities, to provide more immediate service and to inventory larger stocks of batteries, battery elements and related parts at the regional level.

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Pacific Trolling Gear

(Continued from page 14)

The weights for king salmon gear vary from 8 to 50 pounds. A common arrangement of salmon lines is to have the longest line to have a sinker of 8 or 15 pounds and as the length of the lines become progressively shorter toward the boat the weights become increasingly heavier.

Variations of Lures and Hooks

Lure is a general term for whatever attracts fish to the hook and includes spoon, jig, squid, live bait or dead fish. The lure carries a hook which is usually concealed when used with bait, squids, and feathered jigs, but exposed on spoons and bone jigs.

In general, the metal spoon is curved or cupped to insure a wobbling motion while fishing. In most cases a single hook is linked to the lower end of the spoon so that it hangs free to turn. In a few spoons, the hook is bolted to the body. Occasionally the hook is fastened a third of the way up the body of the spoon. Albacore spoons are a few sizes smaller than those used for salmon.

Fish, as bait, is used by trollers all along the California coast. Fresh sardines are preferred, but during periods of scarcity, salted sardines serve well. Large anchovies and herring are also used, and fillets of larger fish are sometimes substituted.

Originally the word squid was applied to the 10-armed mollusk used as bait. Later the word came to mean an artificial lure resembling the animal. Still later it meant any artificial lure. For the past decade the term has meant any squid-like lure that has dangling cords resembling the arms of a squid. Most of the squids have a hole running through them lengthwise, through which the leader wire may be passed. The double hook is attached to the wire and is pulled snug to nestle among the tentacles.

In spite of the variations, two basic types of jigs have persisted since ocean trolling began in California. The simplest and oldest type is the large whalebone jig with a large single hook bolted to a boat shaped body. The hook is usually barbed for salmon fishing, barbless for albacore. There are many variations of this type, which may be of bone, horn, part metal, plastic, or burnished aluminum.

The second basic type consists of a head with a tail of feathers concealing a double hook. This type is often referred to as a feather. A small hole in the head allows the leader wire to pass through to the hook. Shark skin or other tough material is used to protect the base of the feathers, leaving four or five inches to trail behind and hide the hook. The head may be metal, wood, bone, rubber or plastic and may have inset or painted eyes.

A flasher is a bright piece of metal which reflects light to attract fish. The most common is a thin metal sheet three and a half inches wide and 12 inches long. One third is bent up at an angle of 30 degrees and another third is bent down 30 degrees, to give it a weaving motion. It is given bright colors, such as red, orange, or silver fluorescent paint. The flasher is attached to the leader about two feet forward of the lure. It attracts the attention of the fish which goes to investigate. The fish sees the lure and takes it.

The significant difference in hooks is whether or not they are barbed. In general, salmon hooks have barbs and albacore hooks are barbless. Some albacore trollers hammer down the barb to make a solid lump near the point of the hook. Fishermen claim that slow moving fish like salmon are more apt to shake the hook and therefore the need for barbs. Fish are removed more rapidly from a barbless hook and the lure may be returned to the water more quickly.

Practically all hooks are straight and have a ball eye. There are many variations in shank length. Impaling a small fish as bait on a hook requires a long shank of five to eight inches, while short hooks are preferred for feather and bone jigs and squid.

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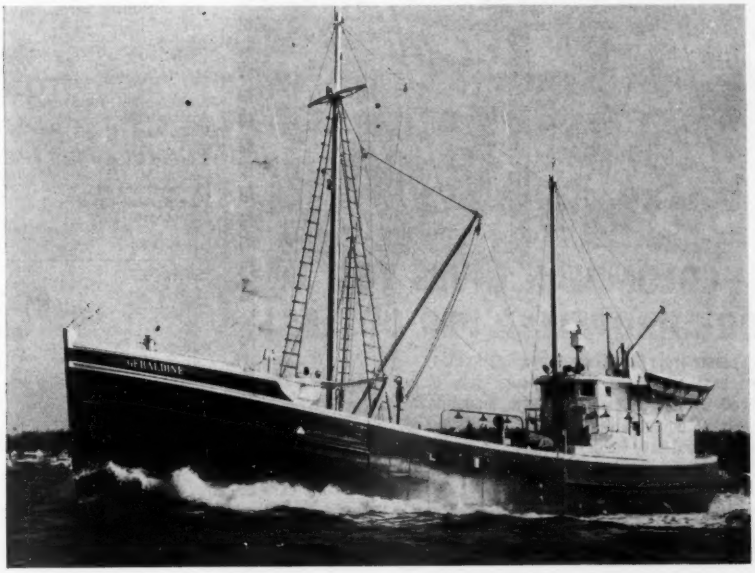

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North Carolina Oyster Industry

(Continued from page 12)

He contrasts North Carolina with Virginia, where official policy favors private industry in oystering, and 115,000 acres were being cultivated under private lease two years ago.

Oyster value to the fishermen in North Carolina was $480,000 for 1957 and considered a poor year. The 1957 figure represented a harvest of 150,642 gallons. Around 300 dredges were working. Top year since 1950 was 1952, when 185,245 gallons and $600,238 were realized. Last year's drop in production is attributed to the fact that the grounds had been overworked the previous year, the intensified seed program was just beginning and oysters hadn't had time to mature.

Increased Production

Although the figures are not yet complete for the current season, it is felt the fishery has maintained its production through the spring of 1958, and that next season the results of seeding for the past several years will be reaped.

"Oysters growing below the water probably were not effected by the low mid-winter weather this year," says Dr. Chestnut. "There were some signs of mortality among coon oysters, but this was a small percentage of the total." Coon or bunched oysters have caused some trouble in the state and have to be broken apart.

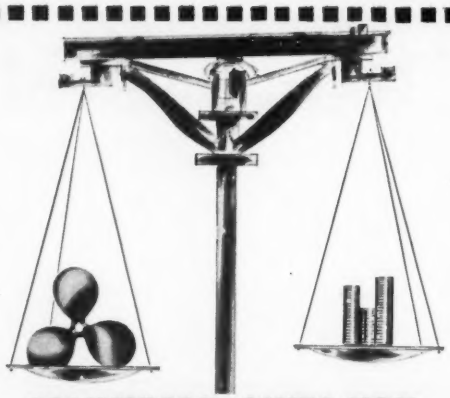
A trend toward the organization of oystermen is starting. More North Carolina individual oystermen are beginning to take an active interest in community development, Dr. Chestnut explains. Proof of the new interest comes from the North Carolina Fisheries Association which, under the presidency of Roy Watson of Hobucken, initiated an oyster study project in January, with members from the eight oyster producing counties and Beaufort.

Dr. Chestnut anticipates that in each of the counties several areas will be closed to dredging, with designated areas for tonging, although the ultimate decision belongs to the Board of Conservation and Development. Two oyster areas—Shell Bay in Hyde county and West Bay in Carteret—were opened last December after having been closed during the earlier seeding program to allow oysters time to reach the state's legal three-inch minimum cull. Freshly seeded public bottoms in North Carolina are usually closed for two years, although some private grounds, there and elsewhere, maintain a three-year maturation period, and Rhode Island requires five. North Carolina regulations are enforced by C. Gehrman Holland, head of the Commercial Fisheries Division of the Department of Conservation and Development.

We are hoping for a definite increase in 1959 and 1960, says Dr. Chestnut. "This past season there was an unusually heavy set, especially on shells planted last summer. We now have an abundant supply of oyster seed. This is encouraging for the harvest several years hence."

Much of the exploratory work preceding the dumping of shells and seed planting is done by the U.N.C. Fisheries Institute boat *Machapunga,* which locates proper river bottoms so oysters will not smother by sinking into too soft beds or be covered by too course beds with shifting sands. These phenomena occurred during the hurricanes of 1954 and 1955 when oyster mortality ran from 50 to 100 percent in some places.

To quote Dr. Chestnut, "The natural beds of North Carolina differ markedly, in one respect, from those in many northern areas in that there is very little substratum. The beds are situated on the surface of a sandy or firm muddy bottom with very little depth of shells. Intensive dredging of the beds soon removes this layer, and the recovery becomes a slow and prolonged process, unless shell plantings are made and oysters returned to the bed to build up a future supply."



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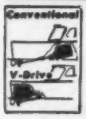

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Bette Ann (8)	4,500	Lt. Thos. Minor (8)	4,700
Carl J. (14)	33,200	Marise (12)	10,500
Carolyn & Gary (15)	16,500	Old Mystic (13)	22,300
Connie M. (15)	14,900	Theresa (2)	1,400
Fairweather (1)	800	Weezie May (1)	200
Five Sisters (2)	3,300	William B. (15)	38,400
Jane Dore (16)	10,800		

ROCKLAND (Me.)

Araho (2)	173,000	Mabel Susan (4)	119,500
Dorothy & Ethel II (1)	33,000	Ocean (1)	300,000
Elin B. (3)	112,500	Rhode Island (4)	187,500
Ethel B. (2)	3,100	Squall (2)	600,000
Flo (3)	147,000	Storm (2)	600,000
Helen Mae II (3)	102,000	Surf (2)	600,000
John J. Nagle (3)	331,500	Tide (2)	600,000
Little Growler (4)	219,500	Wave (2)	540,000
Louise G. (3)	89,500		

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Pocahontas (3)	33,000

GLOUCESTER (Mass.)

Acme (12)	37,000	Little Flower (8)	241,000
Agatha (6)	452,500	Little Joe (4)	16,000
American Eagle (6)	254,000		
Anna Guarino (15)	38,000	Malolo (2)	145,000
Annie (13)	30,000	Manuel P. Domingoes (2)	343,000
Anthony & Josephine (15)	50,000	Margaret Marie (10)	28,000
		Marianna II (5)	166,000
Baby Rose (2)	137,000	Mary Ann (3)	176,000
Blue Waters (2)	340,000	Mary Jane (1)	185,000
Bonaventure (2)	105,000	Mary Rose (2)	320,000
Bonnie Bill (11)	28,500	M. C. Ballard (2)	273,000
Bonnie Breeze (1)	195,000	Morning Star (7)	149,000
Cape Cod (15)	57,000	Nancy & Maria (11)	31,500
Carlo & Vince (4)	39,500	Natale III (7)	235,000
Cigar Joe (3)	137,500	Njorth (5)	6,000
Clinton (3)	6,000	No More (8)	9,500
Clipper (1)	160,000	North Sea (1)	165,000
Curlew (2)	353,500		
Cushmeer (2)	480,000	Olympia (6)	195,000
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Dawn (12)	25,500		
Dolphin (2)	250,000	Peggy Belle (6)	4,000
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		Pilgrim (4)	531,000
Eagle (2)	355,000	Pioneer (15)	32,000
Eddie & Lulu M. (14)	27,500	P. K. Hunt (1)	80,000
Edith L. Boudreau (2)	180,000	Priscilla (1)	1,500
Emily Brown (1)	175,000	Prosperity (2)	31,500
Estrela (2)	320,000	Puritan (2)	93,000
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Evelyn C. Brown (2)	585,000	Rose & Lucy (5)	236,000
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Frankie & Jeanne (8)	13,500	St. Cabrini (5)	219,500
		St. John (11)	26,500
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Gertrude E. (9)	10,000	St. Mary (9)	189,000
Giacoma (15)	20,000	St. Nicholas (2)	370,000
Golden Dawn (8)	82,500	St. Peter (6)	194,000
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		St. Terese (6)	236,500
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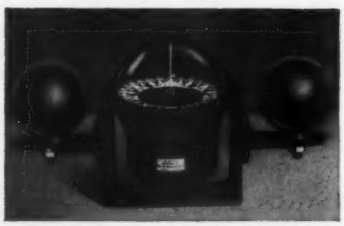

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SEATTLE (Halibut Fleet Fishery)

Addington (1)	50,000	Leading Lady (1)	75,000
Agnes O. (1)	26,500	Leviathan (1)	42,000
Akutan (1)	65,000	Lloyd (1)	30,000
Alaska Queen (1)	38,000	Lorelei II (1)	58,000
Alma (1)	41,000	Lucky Star (1)	47,000
Alma J. (1)	53,000		
Alrita (1)	82,000	Maddock (1)	10,400
Alsek (1)	42,000	Marconia (1)	120,000
Angeles (1)	32,000	Marilee Ann (1)	25,000
Anne (1)	35,000	Martindale (1)	65,000
Arlice (1)	50,000	Masonic (1)	43,000
Arne (1)	25,000	Mermaid (1)	21,000
Arrow (1)	45,000		
Atlantic (1)	43,000	Nanna (1)	24,900
		New Era (1)	38,000
B. C. Rover (1)	90,500	New Queen (1)	36,000
Bergen (1)	42,000	Nightingale (2)	25,900
Bernice (1)	21,500	Nordic (1)	44,500
Bernice R. (1)	23,000	Norrona (1)	48,000
Borghild (1)	21,000	North (1)	59,000
		Northern (1)	52,000
California (2)	70,000		
Carol M. (1)	56,000	Oceanus (1)	32,000
Chelan (1)	33,000	Orbit (1)	20,000
Chelsea (1)	65,000	Ozzy R. (2)	41,000
City of Seattle (1)	108,000		
Combat (1)	44,000	Polaris (1)	62,000
Constitution (1)	66,000	Premier (1)	9,000
Coolidge (1)	44,000		
Crest (1)	40,000	Radiant (1)	3,000
		Recovery (1)	42,000
Dean (1)	26,000	Republic (1)	54,000
DeLuxe (1)	18,000	Resolute (1)	61,500
Dolphin (1)	22,000	Roselene (1)	52,000
Eastern (1)	17,000	St. John II (1)	47,000
Eclipse (1)	60,000	Salute (1)	64,000
Empress (1)	10,000	Sanak (1)	55,000
Estep (1)	31,000	Sandra L. (1)	31,000
Ethel S. (1)	42,000	San Juan (1)	55,000
Evening Star (1)	53,000	San Juan II (1)	45,000
		Satrania (1)	62,000
Faith II (1)	25,000	Sea Bird (1)	53,000
Fortress (1)	50,000	Seymour (1)	80,000
Freya (1)	32,000	Shirley J. (1)	38,000
		Signe (1)	45,000
Guardian (1)	52,000	Snowfall (1)	60,000
Grant (1)	52,000	Sonja (1)	25,700
		Soupfin (1)	52,000
Hazel H. (1)	30,000	Sunset (1)	55,000
Hoover (1)	50,000	Susan (1)	60,000
		Sylvia (1)	20,000
Ideal (1)	18,000		
Ikaros II (1)	13,000	Tanza (1)	45,500
Ilene (1)	52,000	Thor (1)	58,000
Inez M. (1)	35,000	Tillikum (1)	9,000
Irene G. (1)	73,000	Tongass (1)	60,000
Ivanhoe (1)	53,000		
		Urania (1)	43,000
Jane (2)	72,000		
		Vigorous (1)	65,000
Kaare (1)	95,000	Vivian (1)	62,000
Karen T. (1)	63,000	Wesley (1)	11,500
Kingfisher (1)	21,000		
Kodiak (1)	85,000	Yakutat (1)	40,000
Lady Olga (1)	55,000	Zenith (1)	57,000
Lane (1)	12,000		

PORTLAND (Me.)

Alice M. Doughty II (4)	144,000	Nancy B. (3)	133,000
Andarte (1)	45,000	Olive Mae (3)	20,900
Ariel (6)	15,300	Quincy (1)	210,000
Bois Bubert (1)	25,000	Rebecca II (3)	24,300
Challenger (9)	144,800	Resolute (1)	40,000
Courier (2)	305,000	St. George (2)	400,000
Crescent (8)	107,800	St. Joseph (1)	10,000
Dorchester (3)	278,000	St. Joseph II (2)	21,000
Dorothy & Ethel II (3)	26,500	Sea Hawk (2)	100,500
Elinor & Jean (4)	57,000	Theresa R. (3)	268,000
Lawrence Scola (6)	44,000	Vandal (3)	290,000
Lawson (1)	40,000	Vida E. II (9)	83,700
Mary & Helen (13)	77,900	Voyager (2)	58,700
Mary & Jennie (14)	132,600	Wawenock (2)	480,000
Mascot (1)	10,000	Winthrop (1)	200,000
Medan (2)	600,000		

WOODS HOLE (Mass.)

Angeline (3)	3,100	Judy Sue (2)	3,700
Arnold (6)	41,200	Kathy Dick (1)	700
Bernice (4)	27,900	Kelbarsam (1)	3,100
Carole Ann (3)	26,400	Madeline (3)	15,300
Clara C. (5)	9,200	Madonna De Siracusa (2)	6,900
Clifton (2)	7,600	Margie L. (3)	22,400
Comber (1)	5,100	Mary E. D'Eon (1)	13,900
Dauntless (1)	1,500	Morning Star (4)	6,100
Dorothy & Mary (3)	33,200	Papoose (2)	13,200
Driftwood (3)	6,200	Reliance (4)	9,800
Gertrude D. (1)	12,200	Roann (4)	67,200
Harvest (3)	7,100	Southern Cross (3)	16,700
Huckleberry Finn (5)	15,900	Susie O. Carver (1)	1,100
Isabelle J. (1)	900	Three Bells (3)	10,100
Janet & Elise (1)	900	Viking (4)	12,200

Scallop Landings (Lbs.)

Alpar (1)	11,200

NEW BEDFORD (Mass.)

Adventurer (5)	103,700	Kelbarsam (2)	21,700
Althea (3)	61,500		
Annie Louise (4)	43,800	Lisboa (1)	5,000
Annie M. Jackson (4)	75,500	Lorine III (2)	32,000
Austin W. (2)	30,400	Luann (3)	39,700
Barbara M. (4)	99,200	Lubenray (3)	62,800
Bozo (1)	7,000	Lynn (3)	48,500
Carl Henry (3)	126,500	Major J. Casey (3)	68,600
Cap'n Bill II (3)	120,300	Marie & Katherine (3)	57,500
Captain Deeboid (2)	38,200	Mary E. D'Eon (2)	50,500
Carol & Dennis (1)	8,800	Mary Tapper (3)	111,500
Catherine & Mary (1)	18,200	Midway (3)	164,300
Charles E. Beckman (4)	55,600	Miriam A. (3)	67,800
Christina J. (3)	113,000	Molly & Jane (3)	74,700
Christine & Dan (4)	70,400		
Comber (3)	41,300	Nautilus (1)	38,300
Connie F. (1)	4,200	North Sea (3)	58,600
Debbie & Jo-Ann (1)	18,600	Pauline H. (3)	230,100
		Phyllis J. (4)	69,000
Eunice-Lilian (1)	22,700		
		Rita (3)	34,200
Fairweather (4)	33,500	Roberta Anne (2)	55,200
Falcon (2)	44,700	Rosalie F. (2)	55,400
Famiglia (2)	27,200	Rosemarie V. (3)	66,100
Friendship (3)	57,900	Rush (3)	105,100
Gannet (2)	131,100	Shannon (1)	11,000
Growler (2)	74,900	Solveig J. (3)	203,700
		Stanley B. Butler (2)	149,900
Harmony (3)	48,400	Sunbeam (3)	49,900
Hope II (3)	58,400	Susie O. Carver (4)	50,300
Invader (3)	132,200	Teresa & Jean (4)	207,600
Isabelle J. II (1)	10,000	Two Brothers (4)	51,200
Ivanhoe (2)	57,100		
		Venture I (2)	84,000
Jacintha (3)	194,000	Victor Johnson (2)	67,100
Janet & Jean (2)	41,000	Viking (3)	144,300
Joan & Tom (1)	20,300		
Julia DaCruz (2)	42,500	Whaler (1)	61,100
		Wheezie-May (1)	5,300
Katie D. (1)	65,000		

New Bedford Scallop Landings (Lbs.)

Abram H. (2)	21,400	Laura A. (2)	22,000
Adele K. (4)	38,300	Lauren Fay (3)	33,000
Agda W. (1)	9,500	Linda & Warren (2)	18,000
Aloha (2)	22,000	Linus S. Eldridge (2)	22,000
Alpar (1)	10,500	Louis A. Thebaud (2)	19,000
Amelia (2)	22,000	Louise (3)	33,000
Babe Sears (2)	20,000	Malene & Marie (2)	22,000
Baltic (3)	33,000	Marjorie M. (2)	9,700
B. Estelle Burke (2)	22,000	Marmax (2)	22,000
Bobby & Harvey (3)	28,400	Mary Ann (2)	22,000
Brant (2)	22,000	Mary J. Hayes (3)	33,000
Bright Star (2)	22,000	Mary J. Landry (1)	10,000
Brother Joe (3)	22,000	Moonlight (2)	22,000
Camden (3)	33,000	Nancy Jane (2)	22,000
Cap'n Bill (2)	18,500	Nellie Pet (3)	33,000
Carol & Estelle (2)	22,000	New Bedford (2)	22,000
Catherine C. (2)	22,000	Newfoundland (2)	20,000
Charles S. Ashley (2)	22,000	Noreen (2)	22,000
Clipper (3)	33,000		
		Pearl Harbor (2)	22,000
Dartmouth (2)	22,000	Pelican (2)	22,000
Debbie & Jo-Ann (1)	11,000	Polaris (2)	22,000
		Porpoise (3)	33,000
Edgartown (2)	22,000		
Eleanor & Elsie (2)	22,000	Ruth Lea (3)	33,000
Elizabeth N. (2)	22,000	Ruth Moses (3)	33,000
Empress (2)	17,000		
Eunice-Lilian (1)	11,000	Sandra Jane (3)	33,000
		Sea Ranger (1)	11,000
Fairhaven (3)	26,200	Sharon Louise (3)	31,000
Flamingo (2)	22,000	Sippican (2)	22,000
Fleetwing (2)	22,000	Smilyn (2)	21,500
Florence B. (2)	22,000	Snoopy (3)	33,000
		Stanley M. Fisher (3)	33,000
Geraldine (3)	33,000	Stephen R. (2)	11,500
Hilda Garston (2)	22,000	Ursula M. Norton (2)	22,000
Jerry & Jimmy (3)	33,000	Vivian Fay (2)	22,000
Josephine & Mary (2)	22,000		
		Wamsutta (1)	11,000
Kingfisher (2)	22,000	Whaling City (2)	21,500

NEW YORK

Andrea G. (1)	72,000	North Cape (2)	63,300
Austin W. (2)	102,000	Tina B. (3)	176,600

Scallop Landings (Lbs.)

Barbara & Gail (2)	22,000	Felicia (3)	33,000
Beatrice & Ida (2)	21,500	Karina T. (2)	20,800
Carol-Jack (2)	22,000	Muskegon (2)	13,500
David A. (2)	22,000	Richard Lance (2)	20,900
Enterprise (2)	21,800		

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Caterpillar Tractor Co., Peoria, Ill.
Cummins Engine Co., Columbus, Ind.
Detroit Diesel Engine Div., General Motors Corp., 13400 W. Outer Drive, Detroit 28, Mich.
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Gray Marine Motor Co., 646 Canton Ave., Detroit, Mich.
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Hercules Motors Corp., 101 Eleventh St., S.E., Canton, Ohio
Lister-Blackstone, Inc., 42-32 21st St., Long Island City 1, N. Y.
H. O. Penn Machinery Co., Inc., East River and 140th St., New York, N. Y.
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Petter Engine Div., Orenda Industrial, Inc., 34-14 58th St., Woodside 77, N. Y.
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Wolverine Marine Dept., The Coulter & McKenzie Machine Co., 35 Union Ave., Bridgeport 3, Conn.

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Gray Marine Motor Co., 646 Canton Ave., Detroit, Mich.
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Red Wing Marine Corp., Red Wing, Minn.

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Evinrude Motors, 4670 N. 27 St., Milwaukee 16, Wis.
Johnson Motors, 6300 Pershing Rd., Waukegan, Ill.

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Stroudsburg Engine Works, 62 North 3rd St., Stroudsburg, Penn.

WIRE ROPE
American Steel & Wire Division, United States Steel, Rockefeller Bldg., 614 Superior Ave., Cleveland 13, Ohio.
Hackensack Cable Corp., 110 Orchard St., Hackensack, N. J.
John A. Roebling's Sons Co., Trenton 2, N. J.
Wickwire Spencer Steel Division of The Colorado Fuel & Iron Corp., Palmer, Mass.

FOREIGN BAILINGS

ATTRACTING FISH by underwater light into dense shoals and then sucking them up by fish pumps has been successfully carried out by Russian fishermen in the Caspian Sea.

One view why many fish are attracted to underwater light is that the attraction is a feeding reflex. Daylight acts as a stimulus for an unconditional feeding reflex, and in the dark an artificial light will produce the same effect.

The electric lamps are enclosed in watertight fittings and emit a flow in all directions.

A NEW ORDER issued by the Mexican Secretary of Navy, in effect for all Mexican ports on the Gulf, states that fishing boats of foreign nationality can provision themselves with food and fuel for 48 hours only.

Further, the fishing boats cannot buy ice or equipment since it is believed that with what they are authorized to load, they can reach their home ports. Repairs to boats will be authorized directly by the Director General of the Merchant Marine, following investigations of condition of boats by port captains and designated inspectors.

RUSSIA HAS JOINED the International Commission for Northwest Atlantic Fisheries. Soviet delegates were scheduled to attend the commissions's annual melting at Halifax this month.

The Soviet Union is the 12th nation to sign the international convention setting up the commission, whose aim is protection and conservation. Russian representatives have attended earlier meetings as observers.

AN ELECTRIC TRAWL patent has been sought by two Icelandic brothers. The trawl is specially adapted for use in the herring fisheries, but it can be used for other fish. Patents are being sought in Denmark, Germany, and the United States. A patent has been issued in Sweden and it is expected that the first electric trawl of this type may be built there.

The trawl is constructed in such a way that an electric current is sent through the towing cables from a generator in the stern of the vessel. This creates electric fields in the water around the trawl so that the fish are stunned and drawn into the trawl.

A FISHERY MOTHERSHIP, built for the USSR in Poland, will operate in Arctic waters.

It is described as 515′ long, 65′ wide, and 29′ deep. Designed for tending 40 trawlers at sea and a crew of 263, it is equipped with 5 refrigeration compartments, a drying chamber, and a helicopter.

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BOAT & GEAR MART

Classified Advertising Rates: $1.00 per line, $5.00 minimum charge. Count 9 words to a line. Closing date, 25th. National Fisherman, Goffstown, N. H.

FOR SALE

Cruisers, draggers, auxiliaries—all types and sizes. If you are in the market for anything in that line, please write us—no inquiry too small to merit attention. KNOX MARINE EXCHANGE, INC., CAMDEN, MAINE.

GM MARINE EXHAUST ELBOWS

Water cooled exhaust manifold elbow GM Part No. 5190686. Fits all GM & Gray Marine Series 71 marine Diesel engines. - $5.00 each. Ships & Power, Inc., 3618 NW North River Dr., Miami, Florida. NEwton 5-0816.

GOVERNMENT SURPLUS EQUIPMENT LIST

Buy surplus direct from Government at tremendous savings. Boats, motors, gear, machinery, power tools, truck jeep, hundreds others. List $1.00. Surplus Bulletin, Box 169NAE, East Hartford 8, Conn.

BOAT FOR SALE

New work boat, 60' x 18' x 5', good sea boat. Very sharp, Gray Diesel good as new suitable for commercial fishing or freighting, with or without dredge rig. Tel. Hampton 3-8076. Willie King, 3310 Kecoughton Road, Hampton, Va.

FOR SALE

Lowest Prices ever! 225 hp. GM 6-71 marine Diesel complete with: heat exchanger & Twin Disc 1.5:1 reverse & reduction gear, 12 volt starter & generator, raw water pump. Ready to install, tested, low time $995 each. (installation prints available) Write, wire, phone Albert Heller, 87 Hamilton Ave., Brooklyn 31, N. Y. Tel. UL5-8643.

SHRIMP BOAT FOR SALE

Trawler shrimp carrier 67 x 18 beam. Built by Diesel Engine Sales in 1954 with 135 hp. Caterpillar, 2 to 1 reduction, radio, Fathometer, etc. 5,000 gal. fuel tanks. Completely rigged and fully equipped for long paying trips to Campeche, Mexico. Price $30,000. S. Ursino, 100 N. Mataugas., St. Augustine, Fla. Tel. Valley 9-5435

POWER TAKEOFFS

New Twin Disc #311 and #214 rated 59 hp. and 79 hp. at 300 rpm. Complete with outboard bearing and 14T sprocket for SS-88 chain with throwout yoke and lever. Prices: $285.00 and $325.00 each subject prior sale. New England Trawler Equipment Co., Eastern Ave., Chelsea 50, Mass.

GM MARINE MANIFOLDS

Water cooled marine exhaust manifolds GM Part No. 5165167, and Gray Marine Part No. D6-210-$60.00 each. Ships & Power, Inc., 3618 NW North River Dr., Miami, Florida. NEwton 5-0816.

FISH TUG FOR SALE

Due to my health for quick sale 40 ft. fish tug, Kahlenberg Diesel 36 hp. Excellent net lifter, 32 volt lighting plant. Price $1,000. Also 20 net boxes like new and buoys. Lawrence Holstrom, 3240 Getty St., Mushegon, Mich.

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AND ASSOCIATES
DESIGNERS OF FISHING VESSELS
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Propeller type, for circulation or exhaust. 24 volts DC, with magnetic starter, each **$24.95**
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Specializing in Fishing Boat Supplies
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Suitable for conversion into Tuna Clippers. Located at our dock in Baltimore. Priced very low for quick sale.
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GM ENGINES FOR SALE

Gray Marine Model 64HN9 Diesel engines identical to GM 6-71, complete with Twin Disc X8708A reverse & reduction gears 1.5:1 ratio, fully equipped with heat exchanger and all other accessories, in excellent condition as purchased from Gov't. surplus stocks. Our special price $750.00 each, FOB New York. $250.00 deposit with order. Ships & Power, Inc., 3618 NW North River Dr., Miami, Florida. NEwton 5-0816.

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Purse seiners, draggers, trollers, freezer vessels, tugs, barges, water taxis, cargo ships, tankers, passenger ships dredges, yachts, surplus type vessels and used marine equipment. World-wide contacts. JERRY'S BOAT SALES, 310 West 7th St., San Pedro, Calif.

FOR SALE

30 kw. Diesel generator set, 115 volt DC marine, $600.00; marine Diesels 80 hp., $600.00; 60 hp., $600.00; also Chryslers, Chris Crafts. Helwege, 741 S. Ocean, Freeport, N. Y.

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1898—when fishing trawlers still used sails part time, Mobil was pacing fishing progress with its outstanding products and service.

True since the early days of fishing:

Mobil Protection Pays Off!

FROM the earliest steam-driven boats to today's sleek modern ones, Mobil has been first choice with commercial fishermen. Mobil's world-famous fuels and lubricants have a well-earned reputation among fishermen for protecting engine performance, cutting down repairs and maintenance, and assuring trouble-free operation. And Mobil's fast, expert service saves you time and money . . . keeps port time down to a minimum. No wonder so many commercial fishermen rely on Mobil!

Tune in "TRACKDOWN" every week, CBS-TV.
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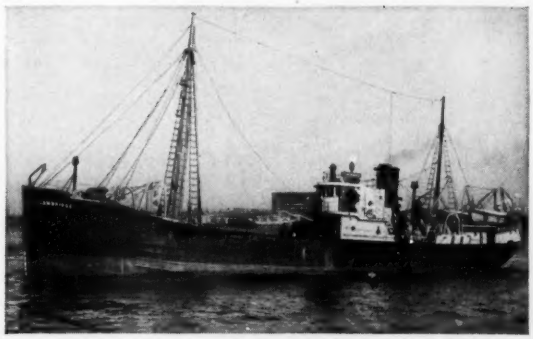

1958—trawlers are larger, more efficient . . . but still bring in the catch with the help of famous Mobil Marine products!

Mobil

Marine Products

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WHEN IT MEANS THE MOST YOU CAN TRUST F-M DIESELS

Walter A. Broll, Chief Marine Division, who directed operations aboard the *Mayor Thomas D'Alesandro, Jr.* that averted disaster in Baltimore.

In crowded Baltimore Harbor, disaster threatened.

Wreathed in smoke and leaping flames lay a motor tanker with a 500,000-gallon high-octane cargo of potential death and destruction.

To the urgent call came the city's newest fireboat, *Mayor Thomas D'Alesandro, Jr.* Powered by twin Opposed-Piston marine diesels, this highly maneuverable vessel helped tow the tanker to deeper water, reducing the threat to nearby shipping. Another identical pair of O-P diesels powered the fireboat's two 10″ fire pumps that smothered the flames under water at the rate of 12,000 gpm.

Heroic men, modern fire-fighting equipment and dependable O-P power combined to win this tense contest with savage flame. Wherever there is a need for reliable power, produced economically, you cannot match the standard set by F-M Opposed-Piston diesels. Fairbanks, Morse & Co., Chicago 5, Ill.

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